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Political Economy Mechanisms of Tariff Protection in Russia
An Empirical Study

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CONTENTS

NON-TECHNICAL SUMMARY

The present study aims at discovering the key political economy determinants of inter-industry differences in the level of *ad valorem* tariff rates in Russia since the beginning of trade policy reforms. Numerous studies of this sort have been performed in the last three decades with respect to the experience of a wide range of industrial and developing countries. However, until now we had no such studies for post-communist Russia. The principal novelty of this study consists in a year-by-year tracing of the influence exercised by political economy factors. This procedure contributes not only to visualizing the political economy mechanisms determining the structure of import tariffs, but also to explaining the evolution of these mechanisms during the period 1992–1997 when Russia experienced frequent and intensive changes in tariff structure.

The modern political economy approach to foreign trade regulation relies on the modeling of government policy formation in terms of market-like interactions among voters, pressure groups, and politicians & bureaucrats. We tested four hypotheses based on this approach (and, more particularly, on endogenous protection theory) as possible explanations of the tariff structure in Russia.

- *The pressure group hypothesis* attaches the principal role to the demand for protection by the producers of import-competing goods. It is supposed that the intensity of lobbying for higher import barriers depends, on the one hand, on the market situation for a particular commodity (*i.e.*, on the dynamics of output, import penetration, *etc.*), and, on the other hand, on the opportunities for domestic producers to overcome the free rider problem and to organize an effective pressure group.

- *The stagnant industry support hypothesis* emphasizes the interest of the government in alleviating the structural and social consequences of the radical intensification of import competition that otherwise can provoke a crisis in import-competing industries. In the Russian case, this hypothesis is related to the minimization of the social costs associated with foreign trade liberalization.

- *The liberalization hypothesis* is based on the assumption that government officials are inclined to protect only those industries that have a competitive structure, because only in this case may the comparative costs of national and foreign producers be correctly estimated and the

real need for protection be determined. Additional assumptions on the nature of the interaction with international institutions and on the role of fiscal considerations have also been made.

- *The foreign repercussions hypothesis* links the expected tariff levels with the possible reaction by countries whose residents export their produce to Russia and/or make direct investments on its territory. The key element here is the possibility of imposition of external economic sanctions in response to domestic policies that harm the citizens of other countries.

In our study, we use nominal rates of *ad valorem* tariffs and *ad valorem* components of compound tariffs as the dependent variables. Independent variables include *commodity market variables* characterizing the situation on Russian markets for individual tariff-protected product types as well as *sectoral variables* intended to take into account some important factors that characterize the general state of business activity in closely connected production spheres.

Four types of tests were made to evaluate the relative performance of the hypotheses under consideration: (1) test of single regression models that include all independent variables; (2) test of individual hypotheses, where only those independent variables were included in the regression models that are considered to be relevant to the particular hypotheses; (3) construction of "ideal" regression models that provide the best approximation of the relations between the independent and the dependent variables for each particular year; and, (4) construction of "ideal" regression models (based on panel analysis techniques) for the entire period under consideration.

The results of our study indicate the existence of a relatively stable political economy mechanism. Its main features can be described by the synthetic "stagnant industries – tariff revenues" hypothesis according to which government policy provides both support for the stagnant industries and additional revenues to the budget. It is important to note that the share of variance in protection rates explained by our models is much larger than in most studies of this sort performed with respect to Western countries. This finding can be interpreted as evidence for the much more important role played by political economy forces in Russia. In fact, this is what is to be expected due to the absence of "historical levels of protection" that exercise an influence on the structure of tariff rates in stable market economies.

The lack of evidence for the pressure group hypothesis is likely to be accounted for by the transitional nature of the Russian economy, with its abundance of firm-specific methods of rent-seeking (lobbying for subsi-

dies, tax write-offs, and so on) that do not require inter-firm cooperation. In this sense, tariff regulation in Russia is unlikely to serve as an important source of policy-induced disproportions that typically are associated with rent-seeking activity.

At the same time, it can be expected that the "stagnant industries – tariff revenues" mechanism that accounts now for the relatively high tariff levels in particular industries will contribute to lowering tariff rates with further developments of economic transformation. On the one hand, the microeconomic adjustment and the exit of less-efficient firms from stagnant import-competing industries will decrease the number of loss-making enterprises as well as the number of workers employed in these industries. As a result, the decline in the absolute size of stagnant industries would potentially lead to a *decrease* in the level of protection, and thus broaden the scope of economically efficient import operations. On the other hand, macroeconomic adjustment accompanied by sound budget policies should lead to the alleviation of the revenue problem, making tariff receipts less important for the government. In this sense, wide-scale trade liberalization will likely be an endogenous product of successful micro- and macroeconomic adjustment rather than being the result of exogenous efforts by "benevolent" politicians or political advisers.

1. INTRODUCTION

Foreign trade liberalization and the transformation of regulatory mechanisms in Russia since 1992 have combined to form an entirely new environment for government management of export–import flows. The necessity to develop a long-term foreign trade strategy aimed at the effective integration of Russia into the system of international economic relations makes it crucial to undertake a comprehensive analysis of the emerging mechanisms of foreign trade regulation. In the situation of severe output declines, one of the most important problems with respect to foreign trade consists in the determination of the protection levels enjoyed by national industries against import competition. Support for specific industries in the form of government regulation of imports can prevent an effective market allocation of both consumer goods and productive resources. At the same time, however, protection can cushion the social costs associated with the contraction of industries with a low level of international competitiveness. The existence of substantial inter-industry differences in import protection levels calls forth the need to identify the factors that affect the attitudes of government officials towards granting protection to producers of specific traded goods.

In this context, principal importance is attached to the following question: what is the degree of government autonomy in formulating protection policy, on the one hand, and the degree of policy dependence on the preferences of organized lobbying groups and the constraints imposed by interactions with foreign companies and international organizations, on the other? In an attempt to answer this question, we will utilize the political economy approach to government regulation and, more specifically, undertake an empirical study based on hypotheses developed within endogenous protection theory.

The present study aims at uncovering the key political economy determinants of the industrial protection structure in contemporary Russia. A regression analysis is employed to find out how the levels of *ad valorem* tariff rates for different traded goods depend on variables which reflect the potential political economy determinants of inter-industry differences in protection levels. Numerous studies of this sort have been performed by Western economists with respect to the experience of individual countries — such as the USA (see, *e.g.*, Lavergne, 1983; Baldwin, 1985), Canada (Caves, 1976; Helleiner, 1977), and Australia (Anderson, 1980) — as well as a wide range of industrial and developing countries (*e.g.*, Anderson and Baldwin, 1987; Ollareaga and Soloaga, 1998).

However, until now we have no such studies for Russia. The principal novelty of our study consists, first, in a year-by-year (for the period 1993–1997) tracing of the influence exercised by political economy factors. This procedure can contribute not only to visualizing the political economy mechanisms determining the structure of import tariffs, but also to explaining the evolution of these mechanisms. The study of such an evolution is made possible by the fact that during the period under consideration import tariffs were subject to deep and frequent revisions. Formal rules limiting government discretion in this sphere were absent until October 1997 (see Section 2). Thus, in 1992–1997 the government enjoyed substantial freedom to formulate import regulation policies so that constraints on its responsiveness to political economy incentives were quite limited.

Another important aspect of the study consists in analyzing the specific features of tariff rate determination in a transitional economic system. In particular, two of the hypotheses that are examined are deliberately designed to depict some peculiarities of economic liberalization; two other hypotheses are formulated in such a way as to take into account the expected impact of factors related to the transition process.

The results of the study allow us to identify a set of factors that play the key role in determining government decisions on the levels of tariff protection granted to Russian producers. The identification of these factors can provide an improved understanding of import regulation mechanisms and their evolution during the period of economic transformation. Such an investigation has a number of important theoretical and practical aspects.

First, our analysis makes it possible to compare the political economy mechanisms that have emerged in Russia with the similar mechanisms described by Western specialists studying experiences with import regulation in stable market economies. As a consequence, the study could shed light on specific features of government regulation in economies in transition.

Second, factors could be identified that create obstacles to effective foreign trade liberalization in Russia as well as those that generate substantial differences in the protection of different industries and can lead to structural disproportions in the allocation of economic resources. The determination of these factors and opportunities to offset them form part and parcel of liberal foreign trade reforms, especially in connection with Russia's expected accession to the WTO.

Third, a basis could be provided for practical proposals related to the recent problems in foreign trade regulation. The results of the study can

serve as a guide to formulating recommendations for further modification of the existing import regulation system in order to achieve the strategic goals of foreign trade policy with as little political and institutional friction as possible.

2. IMPORT REGULATION IN RUSSIA DURING THE TRANSITION PERIOD

The modern history of import regulation in Russia begins with Presidential decree No. 213, "On the Foreign Trade Liberalization in the Russian Federation" (15 November 1991). According to this document, all import barriers were abolished as of 1 January 1992. For eight months Russia followed a policy of "complete import liberalization" and did not have any legal basis for limiting the access of foreign goods to national markets. After this period of free importation, the Temporary Import Customs Tariff was adopted by Presidential decree No. 825 (7 August 1992). Under this decree, as of 1 September 1992, an uniform 15 per cent *ad valorem* import tariff was applied to all commodity types except spirits, beer and wine, television sets, videocameras, audio and video tapes, and cars. (Tariffs for the latter commodity types were higher, with the maximum level being 50 per cent.) At the same time, for some articles (medical equipment, food, children's clothing, and printed matter) the free importation regime was preserved.

On 1 April 1993 the Temporary Import Customs Tariff was replaced by the detailed Import Customs Tariff that was characterized by substantially more diversified tariff levels, with the maximum rate being 150 per cent (for spirits). Like the Temporary Import Customs Tariff, the new Import Customs Tariff fixed only *ad valorem* tariff rates (except for a specific tariff rate for cars imported by individuals).

Less than one year after the adoption of the Import Customs Tariff, the tariff structure was completely revised by government resolution No. 196, "On Fixing Import Tariff Rates" (10 March 1994). Major innovations were (1) raising tariffs — from a level of zero — on food industry products, (2) broadening the scope of specific tariffs (for food delicacies, apples, cocoa products), and (3) the introduction of compound tariff rates for spirits and alcoholic beverages, tobacco, and cars.[1] The key reason for introducing compound tariff rates was to neutralize the consequences of the artificial lowering of the declared customs value of

[1] A standard way of stating compound tariffs through 1997 was "*X* per cent of declared customs value, but not less than *Y* ECUs on 1 kilo (1 unit)".

imports by Russian and foreign companies. In this sense, the specific (in ECUs per physical unit) component of compound tariff rates served as a supplemental device securing the full effect of *ad valorem* rates. (Fiscal considerations also played their part). Though the maximum *ad valorem* tariff rate was reduced from 150 per cent to 100 per cent, the tariff structure of 1994 was on average more protectionist than that of 1993.

The next protectionist move in Russian import regulation policy was associated with government resolution No. 454 "On Fixing Import Tariff Rates" (6 May 1995). The maximum *ad valorem* tariff rate was not changed, but the number of commodity types for which compound rates had to be applied was extended (with the *ad valorem* component of compound rates being in many cases higher than the previous level of the corresponding *ad valorem* rate), while the levels of *ad valorem* tariff rates for a wide variety of commodity types were raised.

Unlike the period 1992–1995 when the tariff structure changed dramatically every year, tariff revisions during 1996 were much more limited. Nevertheless, they included a group of important modifications related first of all to the tariff unification recommended by the IMF. Some commodity types for which a zero tariff rate was previously applied were deprived of zero-tariff status (government resolution No. 413, 11 April 1996); at the same time, the maximum *ad valorem* tariff rate was lowered to 30 per cent, with the only exception being alcoholic beverages (government resolution No. 413 and also resolutions No. 998 and No. 1105, 13 August and 19 September, respectively). Some other tariff rates were also changed, with the principal modifications being of a protectionist nature. One set of these modifications was associated with the previously mentioned government resolution No. 413; another notable change was the increase in the tariff rate on chicken to 30 per cent (government resolutions No. 84 and No. 556, 1 February and 1 May respectively; an attempt to raise the chicken tariff to 35 per cent failed due to intensive pressure exercised by the United States). Government resolution No. 1560 "On the Commodity Classification Used in Foreign Trade Operations, and on the Import Customs Tariff of the Russian Federation" (27 December 1996), which came into force on 1 January 1997, integrated all the revisions made during 1996 into the new Customs Tariff.

The general trend toward stabilization of the tariff structure was reinforced in 1997 by government resolution No. 1347 "On the Questions of Customs and Tariff Policy" (22 October). This resolution established a unified procedure, corresponding to WTO standards, for import tariff revisions. According to this resolution, revisions of tariff rates should not be performed more often than once in 6 months and should come into

force not sooner than 180 days after the publication of new tariff rates in the official press (except for cases when new tariff rates are lower than the previous ones). The resolution also prescribes that tariff levels should not be raised by more than 10 per cent of customs value for *ad valorem* tariffs and the equivalent absolute value for specific rates or specific components of compound rates. The most important revision to the tariff structure during 1997, enacted by government resolution No. 1608 (19 December) on the level of compound tariff rates, strictly followed these new rules.

The central feature of Russian import regulation history is that during the entire period 1992–1997 tariffs played the principal role in protecting Russian manufacturing against imports. Russia did not used the various alternative instruments of import regulation that are common in world practice. According to the agreement with the IMF, Russia should not apply quantitative barriers to foreign trade. Moreover, there has been no legislative basis for applying such instruments as antidumping and countervailing duties, import licenses, *etc.* The federal law "On the Customs Tariff of the Russian Federation" (adopted in 1995) did not contain rules for the application of these non-tariff trade barriers. The law "On the Measures Directed to the Protection of Economic Interests of the Russian Federation in the Foreign Trade in Commodities", which contains detailed rules concerning these measures and their application, was adopted by both houses of the parliament only at the beginning of 1998, and was signed by the President on April 14. The previous version of this law was approved by the parliament in 1996 but vetoed by the President, because many of its provisions could have created serious obstacles to Russia's accession to the WTO.

Another important point to emphasize is that there was no "historical level of protection" to influence the decisions of Russian authorities concerning import regulation policy. Starting from the level of zero protection, the Russian tariff structure experienced radical changes during 1992–1995, with relative stabilization achieved only in 1996. This means that the political economy factors that could provoke these developments were of a short-term nature, with the "adjustment period" (*i.e.*, the period when the tariff structure adjusts to new political economy conditions) probably not longer than one year.

Two conclusions follow from this observation. First, it is more likely that the tariff *levels* rather than the *changes* in tariff levels should reflect the impact of political economy factors. In the absence of a relevant "historical level of protection", changes in tariff levels are not very meaningful indicators unless we stipulate that the previous tariff levels were themselves the equilibrium result of some constellation of political

economy factors, so that the changes in tariff levels can reflect changes in this specific constellation of factors. This line of reasoning, however, brings us back to the task of tracing the impact of political economy factors on tariff *levels*. Second, if the political economy factors that affect tariff levels enacted in a *particular* year are in fact themselves affected by the developments of tariff structure, these developments are related to the policy decisions made earlier, such as the tariff levels in the *preceding* year. Thus, an assumption about the unidirectional causal influence of political economy factors on each year's tariff structure seems to be justified, and the study of their impact can be performed with the standard regression technique (instead of simultaneous regression models).

However, we can not rule out the possibility that the political economy factors are "endogenous" to the models for each particular year in the sense of two-direction causal influence. This fact should be taken into account during the interpretation of regression results. As far as the factors of tariff changes are concerned, we will address this question directly when testing specific regression models.

Table 1 below summarizes the key regulations fixing the import tariff structure during the period 1992–1997. The last column shows the period when political economy factors operated that have presumably determined the tariff structure enacted by the respective regulation. There is no reason to search for any political economy background for the Temporary Import Customs Tariff (enacted on 7 August 1992) because its very simplicity signifies that tariff levels were determined by a rule of thumb to provide some protection for Russian producers during the period before the detailed tariff structure was worked out. (Precisely this reason for enacting the Temporary Import Customs Tariff was put forward by government officials at the time.) Thus, our attention in the econometric part of this study will be focused on the political economy determinants of the tariff structure as fixed by the regulations 3–7 listed in Table 1.

3. THEORETICAL FOUNDATIONS OF THE EMPIRICAL RESEARCH

Modern political economy analysis of government regulation in general and the regulation of imports in particular is based on the modeling of government policy formation in terms of market-like interactions among voters, pressure groups, and politicians & bureaucrats. This approach makes it possible to consider government economic policy not as a factor exogenous to the economic system but as a result of purposeful

Table 1. Key Regulations Concerning the Tariff Protection Policy in Russia, 1992–1997.

No.	Decision taken	Decision came into force	Regulation	Influence of political economy factors
1	15 November 1991	1 January 1992	"On the Foreign Trade Liberalization in the Russian Federation" (Presidential decree No. 213)	
2	7 August 1992	1 September 1992	Temporary Import Customs Tariff (Presidential decree No.825)	
3	15 March 1993	1 April 1993	Import Customs Tariff (Presidential decree No. 340)	1991–1992
4	10 March 1994	15 March 1994 1 July 1994 (for some rates)	"On Fixing Import Tariff Rates" (government resolution No. 196)	1992–1993
5	6 May 1995	1 June 1995 10 May 1995 (for some rates)	"On Fixing Import Tariff Rates" (government resolution No. 454)	1993–1994
6	27 December 1996	1 January 1997	"On the Commodity Classification Used in Foreign Trade Operations, and on the Import Customs Tariff of the Russian Federation" (government resolution No. 1560)	1995–1996
7	19 December 1997	1 February 1998	"On the Amendments to the Structure of Import Tariff Rates Enacted by Government Resolution No. 1560, 27 December 1996" (government resolution No. 1608)	1996–1997

maximizing behavior by political market agents under the given institutional constraints (Hettich and Winer, 1993). Government regulatory policies are considered to be endogenous to the system embracing economic markets (*i.e.*, markets for commodities and services) as well

as political markets, where special privileges for different categories of economic agents are exchanged for their support in the form of votes, electoral contributions, *etc.*

Endogenous protection theory based on this analytical scheme devotes principal attention to the factors that determine the demand for protective policies by pressure groups and voters, on the one hand, and the supply of these policies by politicians and bureaucrats, on the other (see, in particular, Hillman, 1989; Mayer, 1984; Nelson, 1988). Factors under consideration include (1) the economic efficiency of lobbying for producers, which in turn depends on the comparative returns for their economic and political activity; (2) opportunities for accumulation of resources to perform lobbying, related first of all to the extent of the free rider problem within a group of producers; (3) the sensitivity of consumers (voters) to protection policies affecting their welfare; and (4) autonomous motivations of politicians and bureaucrats unrelated to the maximization of political support received from pressure groups and voters.

There are two general approaches to trade policy determination in the endogenous protection literature. The first one relies on probabilistic voting models of the 2×2 type (two pressure groups, two political parties). According to this approach, political parties announce trade policy to maximize the electoral support provided by pressure groups, while the members of these groups calculate optimal electoral contributions so as to maximize the expected level of their incomes, given that political markets clear more frequently than economic markets, *i.e.*, the time span between successive elections is less than that for economic markets to come to equilibrium (see, *e.g.*, Magee *et al.*, 1989, pp 54, 55). Thus, every political party (*e.g.*, party 1) maximizes

$$\pi_1 = \pi_1(C_1, C_2, t_1, t_2), \tag{1}$$

where $C_i = \Sigma C_{ij}(t_i)$ is the volume of resources transferred to party i by the pressure groups j (j=1,2), and t_i is the trade policy variable (*e.g.*, the tariff rate) announced by party i. At the same time, every pressure group (*e.g.*, pressure group 1) maximizes

$$\begin{aligned} R_1 = {} & \pi_1(C_{11}, C_{12}, C_{21}, C_{22}, t_1, t_2) \times r_{11}(C_{11}, C_{21}, t_1) + \\ & + [1-\pi_1(C_{11}, C_{12}, C_{21}, C_{22}, t_1, t_2)] \times r_{21}(C_{11}, C_{21}, t_2) - \\ & - C_{11} - C_{21}, \end{aligned} \tag{2}$$

where π_1 is the probability that party 1 will win the forthcoming election, C_{ij} is the volume of resources transferred to party i by pressure group j,

and r_{i1} is the revenue of members of pressure group 1 in the case when party i wins the election.

A prominent feature of the probabilistic voting approach is that it leaves almost no scope for governmental discretion in trade policy issues (the so-called powerless politician effect), because under the conditions of intensive political competition, the optimal strategy for each political party consists in the precise balancing of the interests of the "sponsor" pressure group and those of the voters whose welfare is also influenced by trade policy. An alternative approach eliminates this deficiency by admitting some degree of monopoly power for the ruling party in formulating trade policy during the time period between elections (Grossman and Helpman, 1994). Enjoying this "monopoly" position, the government can formulate trade policy so as to choose the internal price vector $p = p(p_1, p_2, ..., p_n)$ to maximize

$$G = \Sigma\, C_j\,(p) + a\, W\,(p), \tag{3}$$

where $\Sigma C_j(p)$ is the volume of resources transferred to the government by pressure groups j (j = 1, 2, ..., n), $W(p)$ is the aggregate welfare of the country's citizens, and a is the relative weight ascribed by the government to the citizens' welfare. Though the principal inducement of the government to care for citizens' welfare is related to its desire to attract votes, the government can also follow some autonomous motives for raising the welfare of the general population or particular social groups. Thus, this approach allows us take into account not only an investment motive underlying government behavior (*i.e.*, the desire of the ruling party to raise its chances for victory in the next elections) but also — through the parameter a — a consumption motive related to the possibility for the ruling party to realize its ideological preferences.[2] Due to this feature, the approach under consideration forms — implicitly or explicitly — the basis for numerous empirical studies applying endogenous protection theory.

There is no universal agreement among specialists working in the field of endogenous protection theory on the exact combination of factors determining tariff levels in different industries. This theory, therefore, does not allow us to put forward strict and unambiguous statements on the relationship between industry characteristics and the potential for an industry to receive protection against foreign competition (Trefler, 1993). But endogenous protection theory does make it possible to for-

[2] The distinction between investment and consumption motives in political activity was introduced by George Stigler; see Stigler (1972).

mulate various (and sometimes conflicting) hypotheses designed to estimate the probability of alleviating import pressure by taking into account specific developments in the industries under consideration (see, in particular, Finger, Hall and Nelson, 1982; Baldwin, 1982).

Two major questions addressed in empirical studies on endogenous protection are concerned with the determinants of the tariff structure (Pincus, 1975; Anderson and Baldwin, 1987, *etc.*) and the changes in tariff levels due to major trade policy reforms (*e.g.*, Baldwin, 1985). To study both issues, a set of hypotheses has been put forward. Among them, two hypotheses directly address the investment motive in trade policy formation. The pressure group hypothesis focuses attention on the problem of resource transfer from producers to the government, whereas the adding machine hypothesis stresses the incentive for the government to protect geographically dispersed industries with the largest number of employees-voters (Caves, 1976). Alternative hypotheses emphasize the consumption motive in government activity. They aim to assess the interest of the political authorities in achieving such policy targets (not related or only indirectly related to political support maximization) as protecting stagnant industries and/or industries that employ a large number of low-income workers, minimizing short-term adjustment costs for industries suffering from an unexpected shock in world prices (in some sense, preserving the economic *status quo*), interacting with foreign governments on trade policy issues, and so on.

Strictly speaking, hypotheses of the "consumption" nature resemble models of activist and autonomous government rather than the more traditional political economy models of market-like political interactions. In the theoretical literature, there is a pronounced tendency to expand the pressure group hypothesis to analyze problems that are otherwise addressed in "consumption"-type hypotheses. This approach is intensively applied to study the protection of senescent (stagnant) industries (Hillman, 1982; Cassing and Hillman, 1986), the impact of the internationalization process on the foreign trade regime (Hillman and Ursprung, 1988), *etc.* In this connection, comparative testing of "investment"-type and "consumption"-type hypotheses in empirical studies can provide valuable information on the degree of government autonomy as well as lend assistance to estimating the adequacy of the extended "investment" framework.

The analytical approaches developed within endogenous protection theory provide useful guidelines for the explanation of different phenomena in the sphere of import regulation. A special emphasis on the role of quantitative characteristics of industrial activity and commodity markets in the studies of this sort enables us to put forward some empirically

verifiable hypotheses on the determinants of the tariff structure in Russia. Four such hypotheses are the focus of our study.

4. HYPOTHESES AND VARIABLES

4.1. Hypotheses to be Tested

For the analysis of import policy determination in Russia during the transition period, two hypotheses characteristic of empirical studies on endogenous protection theory are of principal interest.

- *The pressure group hypothesis* attaches the key role to the demand for protection by the producers of import-competing goods (Pincus, 1975; Hansen, 1990). It is stipulated that the intensity of lobbying for higher import barriers depends, on the one hand, on the market situation for a particular commodity (*i.e.*, on the dynamics of output, prices, and import penetration), and, on the other hand, on the opportunities for domestic producers to overcome the free-rider problem and to organize an effective pressure group.

- *The stagnant industry support hypothesis* emphasizes the interest of the government in alleviating structural and social consequences of the radical intensification of import competition (induced, *e.g.*, by the decline in world prices or import liberalization) that otherwise can provoke a crisis in import-competing industries. According to the hypothesis, tariff levels should be higher the more intensive the competition between national and imported products and the worse the situation in import-competing industries. In the Russian case, this hypothesis has much in common with the *status quo* hypothesis that prescribes the minimization of the social costs associated with changing the foreign competition regime (Lavergne, 1983).

At the same time, it seems important to consider two hypotheses designed to reflect the specific features of the ongoing transformation process in the Russian economy.

- *The liberalization hypothesis* is based on the assumption that government officials are inclined to protect only those industries that have a competitive structure, because only in this case may the comparative costs of national and foreign producers be correctly estimated and the real need for protection be determined. In this context, the expected tariff levels should depend on the degree of industry market liberalization, being negatively related to industrial concentration and the degree of government control over production through the exercise of property

rights over enterprises. The interaction with international institutions like the IMF should also be taken into account since their recommendations play an important role in shaping liberalization policy in Russia.

- *The foreign repercussions hypothesis* links the expected tariff levels with the possible reaction by countries whose residents export their produce to Russia and/or make direct investments on its territory. The key element here is the possibility of imposition of external economic sanctions in response to domestic policies that harm the citizens of other countries, be they exporters or investors (*cf*. Helleiner, 1977). It should be expected that the foreign repercussions factor is especially important for economies in transition because adverse foreign reaction can undermine the international credibility of a reformist government and serve as a hindrance to the integration of the country into the world economic system. (On special problems faced by transition economies as far as foreign barriers to their exports are concerned, see Ehrenhaft *et al.*, 1997.)[3]

To present a more detailed treatment of the hypotheses under consideration, we need to introduce a list of independent variables that can be expected to reflect the political economy factors relevant for the respective hypotheses. In Section 4.2 we describe the variables to be used for testing the hypotheses; in Section 4.3 we identify the expected impact of independent variables on the level of tariff rates according to each hypothesis. Finally, in Section 4.4 the choice of the dependent variables (*i.e.*, measures of tariff levels) is motivated and some problems related to their use and interpretation in a political economy setting are discussed.

4.2. Independent Variables

The independent variables are divided into two broad categories, commodity market variables and sectoral variables.

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[3] In the Russian case, we can expect that the foreign retaliation factor should be most important for relations with the European Union. According to Article 16 of the Russia-EU Partnership and Cooperation Agreement (PCA) signed on June 24, 1994, the parties consented to hold consultations "on their import tariff policies, including changes in import protection". Though this Agreement came into force only in 1997, the main principles of the PCA were fixed in the Temporary Agreement on Trade and Trade-Related Questions that operated since February 1996. The necessity (or at least possibility) of tariff policy coordination with the principal trade partner (the EU accounts for some 40 per cent of Russian official trade turnover with non-CIS countries) could have served as an efficient check on initiatives threatening partner interests.

Commodity market variables characterize the situation on Russian markets for tariff-protected product types. The following variables belong to this category:

1) ΔImp — rate of change in value of imports of a commodity as compared with the preceding year (in per cent);
2) ΔOut — rate of change in physical volume of output as compared with the preceding year (in per cent);
3) *ShImp* — share of imports in national consumption of a commodity under consideration, in per cent (calculated according to the following formula: $ShImp = M*100/(V + M - E)$, where M is the physical volume of imports, V is the physical volume of national production, and E is the physical volume of exports);
4) $\Delta ShImp$ — rate of change in the share of imports in national consumption as compared with the preceding year (in per cent);
5) *ShExp* — share of exports in physical volume of national output of a commodity;
6) *RExp* — net export ratio (calculated according to the following formula: $RExp = (VE - VM)*100/(VE + VM)$, where VE is the value of exports in US$, VM is the value of imports in US$);
7) *ShImpI* — share of imports of a given commodity in the total volume of country's imports (in per cent).

Sectoral variables are intended to take into account some important factors that characterize the general state of business activity in closely connected production spheres. As for the pressure group hypothesis, sectoral variables describe the stimuli and opportunities for lobbying by representatives of allied industries. As for the other three hypotheses, these variables point to the possibility or necessity for granting protection to large sectors of the economy by increasing the tariff rates applied to their products. Eight industrial sectors are considered: fuel industry (subdivided into oil-extracting and oil-refining); ferrous metals; nonferrous metals; chemical and oil-chemical industry; machine-building and metal works; wood & paper; light industry; and, finally, food industry. The following sectoral variables enter the study:

1) ΔPri — rate of change in prices for raw and intermediate products consumed by sectors as compared with the preceding year (in per cent);
2) *Emp* — total employment in a sector;

3) *Wage* — average wage rate in a sector as compared with the average wage rate in manufacturing as a whole (in per cent);
4) *Prof* — profitability of production (sum of profits as compared with the sum of production costs of enterprises, in per cent);
5) *Inv* — creation of new production facilities (in per cent of existing ones);
6) *Loss* — share of loss-making enterprises (in per cent);
7) *Debt* — share of enterprises' debt in arrears in total liabilities to suppliers (in per cent);
8) *NEnt* — number of enterprises in a sector;
9) *Mon* — number of enterprises holding monopoly position (according to the official *Register of Economic Subjects*, an enterprise is considered to be a "monopolist" if it produces more than 35 per cent of the total commodity output);
10) *Sh*4 — share of 4 largest producers in total output of a sector;
11) *Stat* — share of total output produced by enterprises fully or partially owned by the state (included are enterprises classified by official statistics as belonging to the "state property", "municipal property", and "mixed property without foreign participation" groups);
12) *ShIn* — share of total output produced by enterprises with foreign participation in property (included are enterprises classified by official statistics as belonging to the "mixed property with foreign participation" group);
13) *InInv* — share of foreign investments to a sector in the total volume of foreign direct investments in manufacturing.

4.3. Expected Influence of Independent Variables on Tariff Rates

• *The pressure group hypothesis*. It is assumed that the demand by producers for import protection is higher in industries most affected by competition from imported products. This effect can be captured by the variables ΔImp, *ShImp*, and $\Delta ShImp$: the higher the value of these variables, the higher the stimuli to lobby for increased level of tariff rates. We should also take into account the impact of the variable ΔOut: the more intensive the output decline in an industry, the more intensive the producers' desire for protection, irrespective of the exact cause for the output decline — whether it is increased import competition or a de-

mand contraction on the domestic market. (On the impact of these variables, see, *e.g.*, Ray, 1981; Baldwin, 1985.)

We can also expect to find a positive impact on the tariff level exercised by the variable ΔPri, and a negative impact by the variable *Prof*: the higher the prices for material inputs and the lower the profitability of production, the more desirable lobbying activity would seem to be as a use for industry resources. Unfortunately, commodity-level information to calculate these variables is unavailable, so we are forced to use the corresponding sectoral variables.

Another important group of factors determines the opportunities for producers to organize an effective pressure group to lobby for raising tariff rates. Key importance is assigned here to overcoming the free rider problem. The intensity of the free rider problem is expected to be positively related to the number of producers and negatively related to the market share of the largest firms.[4] For testing this assumption, attention is usually paid to variables characterizing the number of producers of a given commodity and the market share of 4 (or 8) leading producers, but the data limitations prevent us from using these variables at the commodity market level. Available statistics do not allow us to trace the number of enterprises producing individual commodities on the year-by-year basis. Thus, we will use the variables *NEnt* and *Sh4*, which characterize the potential for overcoming the free rider problem at the sectoral level. Such an approach is reasonable because, due to the wide variety of goods produced by enterprises, producers might be interested in forming sectoral coalitions to lobby for increased tariff rates on most commodities produced in an industry.[5] For similar reasons we include in the set of independent variables the variable *Mon,* characterizing the number of "enterprises holding a monopoly position" in each of 8 sectors. Note, however, that commodities produced under an enterprise's "monopoly position" typically constitute only a limited share of the total output of the enterprise (in 1997, from 49.5 per cent of output in the machine-building and metal works industry to only 7.8 per cent in the light industry and 3.9 per cent in the fuel industry). These enter-

[4] The principal contribution on the role of the free rider problem for the relative success of pressure groups in affecting economic policy formation is Becker (1983). The now universally accepted view on the relationship between the number and size of pressure group members, on the one hand, and the degree of the free rider problem, on the other, was introduced by Mancur Olson in his seminal work *The Logic of Collective Action*: Olson (1965).

[5] In fact, there are widespread discussions in Russia on the role of the "metallurgical lobby", the "machine-building lobby", *etc.* in political decision-making.

prises, having special advantages in lobbying for increased tariffs on their "monopoly" products, presumably can use established contacts with political decision-makers to lobby for tariff increases on other types of their output.

Contacts between producers and the government can also depend on the degree of governmental control over the enterprises. To test this proposition, we use the variable *Stat,* denoting the share of total sectoral output produced by enterprises with state participation in property. According to the pressure group hypothesis, this variable should be positively linked to the level of import tariffs.

Total employment in a sector could serve as a useful guide for estimating pressure group resource potential since the government can be interested in maximizing electoral support. Official statistics do not provide data on the employment in production of individual commodities, so we once again are forced to use a sectoral variable, *Emp*.

Foreign companies have in recent years become important actors in the Russian economy. The potential effect of their activity, therefore, should also be taken into account. As far as the pressure group hypothesis is concerned, there are two reasons to expect that a foreign presence on the market will contribute to lowering tariff rates. First, even if foreign investors are interested in protection (for raising prices on articles produced in Russia and thus their profits from sales in this country), their entry into the market can aggravate the free rider problem more than the entry of Russian companies with the same volume of sales (Hillman and Ursprung, 1988). Due to the diversity of interests of domestic producers and foreign investors, a pressure group with the participation of foreign companies can be much more difficult to form than a pressure group consisting entirely of national firms. Second, one of the motives for foreign companies to invest in Russia could be the desire to counteract protectionist tendencies in Russian trade policy. By establishing production lines in Russia, foreign companies can gain a more favorable attitude from officials concerning their imports to Russia and thus defuse the threat of higher tariffs (along the lines predicted by the *quid pro quo* theory of foreign investment; see Bhagwati, 1987; Dinopoulos, 1992). On these grounds we can expect to find a negative impact from the sectoral variables *ShIn* and *InInv* on tariff levels. (Here it would be preferable to use the corresponding commodity market variables but information for calculating them is not available in Russian statistics).

- *The stagnant industry support hypothesis*. The interest of the government in alleviating the burden of losses placed on national producers by foreign trade liberalization can be taken into account by the variables

ΔImp, ΔOut, *ShImp*, and $\Delta ShImp$. It can be supposed that their impact on tariff levels is analogous to that described in the pressure group hypothesis. However, in this instance these variables serve not to reflect the lobbying stimuli for pressure groups, but rather to identify signals informing the government that production of certain commodities needs to be protected if it is to be maintained. Along with these four variables, we should consider the following sectoral variables: *Emp* (the higher the employment in a sector, the more intensive could be the government's desire to provide protection for production in this sector[6]); *Wage*, *Prof*, and *Inv* (the lower the levels of wages, profits and investment in a sector, the more urgent its need for support); and also *Loss* and *Debt* (the share of loss-making enterprises in a sector and the share of debt in arrears can be interpreted by the government as signs of an unfavorable situation that could be improved by special measures including raising tariff rates).

• *The liberalization hypothesis*. Under the economy-in-transition regime, a reformist government can take deliberate actions to create effective competition among national and foreign producers in order to form an optimal structure of foreign trade specialization. In this case, the variable ΔImp can be positively associated with the level of tariff rates only when the government is sure that comparative cost estimates are meaningful. In empirical studies, the structure of comparative advantage is usually identified by the shares of exports in national output (see, *e.g.*, Baldwin, 1985). We propose to use for this purpose the variable *ShExp* as well as the variable *RExp* that can also indicate the degree of comparative competitiveness of different industries (the lower this degree, the higher will be the expected level of tariff rates). For these estimates of comparative advantages to be meaningful, an industry should have a competitive structure. The impact of the variables *Mon* and *Sh*4 on tariff levels should therefore be negative, and the impact of the variable *NEnt* should be positive. Likewise, we can expect to find a negative relationship between the level of tariff rates and the degree of government control over enterprises operating in a sector (the variable *Stat*) since state participation in ownership can be regarded as a factor limiting the development of market forces. Providing support for sectors with wide government control can also be interpreted by international

[6] This factor can also indicate the interest of the government in mobilizing as much voter support as possible, along the lines suggested by the adding machine hypothesis; see Section 3.

organizations (such as the IMF and the World Bank) as a sign of reluctance to carry out reforms in the public sector.

The role played by international agencies (and the IMF in particular) in the transformation of the foreign trade regulation systems in transition economies is an important factor to study. Apart from the elimination of tariff exemptions (that are treated as a source of significant losses in budget revenues), the IMF insists on greater tariff unification (first of all by decreasing the number of tariff peaks) and lowering the weighted average tariff rate by decreasing the maximal tariff rate and performing widespread tariff cuts. In this respect, we can suppose that the government can be inclined to fix low tariffs on commodities with the largest percentage shares in total imports (*ShImpI*) so as to assure a low level of the weighted average tariff rate while maintaining substantial freedom to fix comparatively high tariffs on other commodity types. This strategy also is compatible with the aim of lowering the weighted average tariff rate as a step to Russia's accession to the WTO.

But the opposite proposition (*i.e.*, that the variable *ShImpI* is positively related to the level of tariff rates) can also be plausible: fixing high tariffs on commodities with a substantial share in total imports can maximize tariff revenues and thus contribute to alleviating the continuing problem of inadequate budget receipts. The revenue-maximizing aspect of tariff policy is intensively stressed by trade theorists (see, *e.g.*, the classical analysis of this problem in Corden, 1974, ch.4). Revenue considerations are also frequently mentioned in the endogenous protection literature as explaining the preference given to tariffs as compared with other trade policy instruments as well as the motive for raising tariff levels (Conybeare, 1983; Hillman, 1985).

Commodity types with a high share in the total value of imports have two unambiguous advantages for imposition of high tariff rates on fiscal grounds. First, a given increase in a tariff rate provides more budget receipts. Second, efficient monitoring of trade flows and the collection of tariff charges is much easier to organize for those commodity types that are well known to customs officials. In other words, an increase in the tariff rate for these commodities is associated with lower losses in revenues due to administrative factors. Alternatively, the collection of tariff charges on a wide range of commodities with low shares in total imports — *i.e.*, commodities not familiar to many customs officials in terms of valuation, specification, *etc.* — can generate substantial administrative costs (as well as opportunities for vari-

ous abuses) that make the fiscal effect of such tariffs negligible.[7] Thus, we cannot make an unambiguous prediction about the direction of the impact of the variable *ShImpI* on tariff rates under the liberalization hypothesis.

• *The foreign repercussions hypothesis*. Here we use once again the variable ΔImp as an indicator of the existing need to protect national producers against import competition. But the probability of a protectionist response to the increase in imports under this hypothesis will be lower the more intensive the penetration of foreign importers into the domestic market (variables *ShImp* and $\Delta ShImp$) and the higher the share of a particular commodity in total imports (variable *ShImpI*), as far as these variables reflect the involvement of foreign exporters on the Russian market and their control over the total volume of transactions.

It is more difficult to take into account the interests of foreign investors. On the one hand, they can be interested in fixing high tariffs on their products to maximize profits from sales on the Russian market. On the other hand, their principal aim can be to neutralize the threat of raising tariffs on their exports to Russia (as explained in the discussion of the pressure group hypothesis). Consequently we will regard the possibility of either positive or negative effects of the variables *ShIn* and *InInv* on levels of tariff rates under the foreign repercussions hypothesis. If foreign investors are interested in raising import barriers this impact is positive; if foreign investments are motivated by the reasons suggested by the *quid pro quo* theory, the impact is negative.

The degree of possible foreign repercussion (and thus the incentive for the Russian government to abstain from measures that are at variance with the interests of foreign exporters and investors) can be estimated using the variable *ShExp*, because the share of exports in national production can be supposed to be proportional to the potential losses associated with foreign sanctions against Russian exporters (*cf*. Anderson and Baldwin, 1987). We can also take into account the variable *RExp*: the higher the net export ratio, the higher are the chances that the government will not take measures that harm foreign companies and raise the threat of sanctions against Russian exports.

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[7] It seems that in the case of Russia both of these factors make the variable *ShImpI* more appropriate for capturing the revenue motive than other, more elaborate, variables (*e.g.*, related to the average weighted tariff rate). The average tariff level is more likely to be the *ex post* result of fixing nominal tariff rates (and the adjustment of imports to the new protection level) than an *ex ante* determinant of the tariff structure.

The direction of the expected influence exercised by each independent variable on the tariff levels is indicated in Table 2. The sign "+" denotes a positive influence, while "−" denotes a negative influence.

Table 2. Independent Variables and Their Expected Impact on the Tariff Level.

	Pressure group hypothesis	Stagnant industry support hypothesis	Liberalization hypothesis	Foreign repercussions hypothesis
Commodity market variables:				
ΔImp	+	+	+	+
ΔOut	−	−		
ShImp	+	+		−
$\Delta ShImp$	+	+		−
ShExp			−	−
RExp			−	−
ShImpI			− (or) +	−
Sectoral variables:				
Pri	+			
Emp	+	+		
Wage		−		
Prof	−	−		
Inv		−		
Loss		+		
Debt		+		
NEnt	−		+	
Mon	+		−	
Sh4	+		−	
Stat	+		−	
ShIn	−			− (or) +
InInv	−			− (or) +

4.4. Dependent Variables

In our study, we use nominal rates of *ad valorem* tariffs and *ad valorem* components of compound tariffs as the variables that reflect the level of protection granted to Russian manufacturers against import competition. Such a choice is determined by a number of features specific to the Russian system of import regulation during the period of economic transformation.

First of all, as noted in Section 2, during the period 1992–1997 import tariffs played the central part in Russian import regulation policy. Alternative types of import barriers have not been used due to the absence of a legal basis and the official obligations fixed in agreements with the IMF. In principle, industry-specific subsidies could be regarded as a supplement to (or even a substitute for) tariffs as a device to cushion the negative influence of foreign competition on national producers; however, no such subsidies existed in Russia during this time frame, except for the agricultural sector. As we do not consider tariffs for agricultural products, these subsidies are not relevant for our study. The subsidization of individual enterprises is a widespread practice, especially on the regional level. But there is no reason to expect that the existence of regional firm-specific subsidies will undermine either the desire of companies to acquire federal industry-specific tariffs or the desire of the government to provide some "background" tariff support for industries suffering from import competition, as this support is associated with positive rather than negative (as in the case of subsidies) cash flows for the treasury.

In general, as the 1992–1997 experience shows, *ad valorem* tariffs (or *ad valorem* components of compound tariffs) were the primary means used to limit import penetration, with specific components of compound tariffs being applied as a supplementary device to counter tariff evasion by importers. So an analysis of the political economy determinants of protection should concentrate on *ad valorem* rates as the principal type of import barriers.

Second, though the differences in nominal tariff rates might not correspond to the differences in effective protection levels, a substantial degree of realism should be assigned to the assumption that the structure of nominal tariff rates accurately reflects the efforts of pressure groups and government officials to limit import penetration in the national markets. On the one hand, members of pressure groups have relatively complete information in their field of activity and thus can lobby for the nominal tariff level that could guarantee them an optimal level of effective protection. On the other hand, decision makers in government, un-

like producers, do not possess the information necessary to calculate adequately optimal levels of effective protection. Thus, the realization of their preferences on the protection of different production branches should be directed at fixing nominal rates. Foreign economic subjects and agencies are also more likely to concentrate attention on nominal protection levels (*e.g.*, IMF recommendations emphasize a reduction in the weighted average of *nominal* tariff rates).

An important aspect of import regulation in Russia is that the competence to fix tariff levels is assigned to the executive branch of government. This fact accounts for the continuity in tariff policy in 1992–1997; it has contributed substantially to neutralizing the impact of political changes during the period studied on the potential for different industries to receive protection against imports. In situations of intensive conflict between the federal legislative and executive branches (especially sharp in 1992–1993) as well as in years of parliamentary (1993, 1995) and Presidential (1996) elections, the efforts of the executive branch to mobilize producer support provided *all* industry groups an opportunity to realize fully their lobbying potential, rather than granted some industries advantages over others.

The adequacy of using *ad valorem* tariff rates for estimating the level of import barriers can be questioned on the ground that substantial amounts of imports enter the country through shadow channels. The practice of foreign trade regulation in Russia during the period studied (and, in particular, during 1992–1994) has also been characterized by granting tariff exemptions to numerous companies and agencies. Consequently, a significant volume of imports was not subjected to tariff control. However, it seems that this factor does not lower the importance of tariff rates for protectionist pressure groups and the government. Though fixing high import tariffs can provide an additional stimulus for shadow imports and thereby fail to generate a significant decrease in import penetration, it nevertheless contributes to raising prices and thus delivers benefits to national producers. It is also unlikely that an exogenous rise in shadow imports can generate stimuli for changing the level of tariff rates because these rates have to do only with official imports. So, as reliable data on shadow imports are unavailable and we are forced to use data on official imports only, it is reasonable to concentrate attention on tariff rates. First, they are designed precisely for regulation of official import flows and so can react (through the political economy links described in Sections 4.1–4.3) to changes in their volume. Second, variation in tariff rates can be viewed, with a substantial degree of realism, as relatively independent of changes in shadow imports.

The same arguments can be applied to tariff-exempt imports, but here we should discuss also the behavior of economic agents enjoying these exemptions. The impact of factors associated with tariff exemptions can be considered in a two-stage setting that determines the regulatory regime for imports. In the first stage, tariff rates are chosen, and importers can participate in this process by lobbying for lower tariff rates (or against their increase), thus counteracting the efforts of protectionist pressure groups. In the second stage (when tariff rates are already fixed), importers could devote themselves to lobbying for tariff exemptions, with tariff rates being unchanged. To the extent that these stages are indeed separable, we can restrict our attention to the first stage when studying the mechanisms of tariff determination, with lobbying by importers being one of the potential factors that can undermine relations described in the pressure group hypothesis.

In reality, however, representatives of tariff-exempt organizations can be interested in raising tariff rates for commodities imported by them in order to increase the domestic prices and thus profits on their imports. This factor is very difficult to account for because adequate information is not available concerning the actual mechanisms by which importers' interests are represented in the government, or concerning the character of relations among importers themselves. So it seems reasonable to consider any lobbying by tariff-exempt organizations to raise tariff levels as exogenous to the system of relationships studied. To minimize possible distortions introduced in the results of our study due to this factor, we have excluded from consideration those commodity types for which tariff exemptions were most common (most notably, alcohol and tobacco). A possible test for the importance of this factor can be performed by comparing those variables that exerted significant influence on the level of tariff rates in 1992–1994, when tariff exemptions became widespread, and in 1997, after their abolition according to Presidential decrees 244 (6 March 1995) and No. 1363 (19 September 1996), as well as the subsequent government resolutions. The abolition of these exemptions was one of the conditions for providing Russia access to the IMF credits.

As far as existing tariff exemptions are concerned (and first of all those granted by the federal law "On the Agreements on Production Sharing" that came into force on January 11, 1996), there is no evidence that organizations enjoying the exemptions are engaged in lobbying for raising tariffs on the articles they import (primarily because the majority of these articles are used for production purposes by the importers themselves). Moreover, the rationales for granting tariff exemptions are now explicitly stated in legislation, so those importers who are entitled to

receive an exemption have no reason to engage in lobbying for lowering tariff rates. This allows us to concentrate attention on tariff levels, ignoring the role played by tariff exemptions under the contemporary import regulation system.

5. ECONOMETRIC MODELS AND RESULTS OF THEIR TESTING

5.1. Single Regression Models

For the purpose of the econometric analysis, a database was formed that includes data on commodity types classified by the official statistics (*e.g.*, *Russian Statistical Yearbook* editions) as the "main commodities of Russian foreign trade". We can expect that the degree of import competition and the general situation on the national markets for these commodities can attract the attention of government officials, even irrespective of pressure group activity. The lower the share of an industry in the value of foreign trade flows, the lower is the probability that the government will pay attention to the impact of foreign trade factors on industry performance, unless producers themselves apply for government support. Thus, the more detailed is the classification of commodity types, the more likely that the bias in favor of the pressure group hypothesis relative to the other hypotheses will appear in the data. By concentrating our attention on the main trade items, we neutralize this relative advantage of the pressure group hypothesis and provide a sound basis for comparing the analytical potential of the different hypotheses.

Official statistics do not make it possible to calculate all commodity market variables for all commodity types. What is more, unified data for imports and exports from CIS and non-CIS countries are available only since 1995. Due to these problems, three different data sets were formed to test our hypotheses as well as two models: one model for total foreign trade (1996–1997) and the other for trade with non-CIS countries (1993–1997). Detailed information on the variables and commodity types included in these models (as well as on the specifics of the Variants 1–3 of the models under consideration) can be found in the Data Appendix, Section DA1.

As a first step to examine the impact of the political economy factors on the level of tariff rates and consider the comparative performance of our four hypotheses, we attempted to estimate for each year a single regression model that includes all of the independent variables. This task is rather complicated due to the significant degree of correlation within the group of sectoral variables. In Appendix A, we present the results of two tests based on the "orthodox" OLS regressions including the vari-

ables that explain the major part of variance in the independent variables sets (Tables A1–A2), and the stepwise backward-selection linear regressions (BSLR, Tables A3–A4).[8] Variant 1 of these regressions is characterized by the exceptionally high values of the R^2 and R_a^2 statistics, with the *F*-ratio being always statistically significant at the 99 per cent confidence level. For Variant 2, which does not include the commodity market variables *ShImp*, Δ*ShImp*, and *ShExp*, the values of the R^2 and R_a^2 statistics are much lower, but the *F*-ratio remains statistically significant at the 99 per cent confidence level in all cases except one.

For Variant 1, which includes all the commodity market variables, we can formulate some more or less definite conclusions. As can be seen, the results presented in Tables A1 and A3 are broadly consistent, with Table A3 being nevertheless much more informative. In Table 3 below,

Table 3. Cases of Statistically Significant Impact of Independent Variables in Single Regression Models (Variant 1).

	Pressure group hypothesis	Stagnant industry support hypothesis	Liberalization hypothesis	Foreign repercussions hypothesis
Δ*Imp*	Y: 1993, 1997a N: 1996, 1996a	Y: 1993, 1997a N: 1996, 1996a	Y: 1993, 1997a N: 1996, 1996a	Y: 1993, 1997a N: 1996, 1996a
Δ*Out*	Y: N: 1993–1996, 1996a	Y: N: 1993–1996, 1996a		
ShImp	Y: 1993, 1994–1997, 1996a–1997a N:	Y: 1993, 1994–1997, 1996a–1997a N:		Y: N: 1993, 1994–1997, 1996a–1997a
Δ*ShImp*	Y: 1996a N: 1993, 1997a	Y: 1996a N: 1993, 1997a		Y: 1993, 1997a N: 1996a
ShExp			Y: 1993–1994, 1997a N:	Y: 1993–1994, 1997a N:
RExp			Y: N: 1994–1996, 1996a–1997a	Y: N: 1994–1996, 1996a–1997a
ShImpI			Y: 1993–1995, 1997 N:	Y: N: 1993–1995, 1997

[8] We were forced to drop some variables due to significant collinearity problems. For details, see Data Appendix, Section DA2.

Continued from p. 32

	Pressure group hypothesis	Stagnant industry support hypothesis	Liberalization hypothesis	Foreign repercussions hypothesis
*Pri**	Y: 1997 N: 1995–1996, 1996a			
Emp		Y: 1993–1996, 1997a (1996a, 1997) N:		
Wage		Y: 1994–1996, 1996a N: 1993		
*Prof**	Y: 1994, 1996, 1996a N: 1993	Y: 1994, 1996, 1996a N: 1993		
*Inv**		Y: 1993 N: 1996 (1995, 1996a)		
*Loss**		Y: 1993, 1997, 1997a N: 1996, 1996a		
*Debt**		Y: 1996 N: 1993, 1997a		
NEnt	Y: N: (1993–1997, 1996a–1997a)		Y: (1993–1997, 1996a–1997a) N:	
*Sh4**	Y: N: 1996 (1996a)		Y: 1996 (1996a) N:	
*ShIn**	Y: N: 1995, 1996a			Y: 1995, 1996a N:

Comment to Table 3.

In Table cells, years are indicated when the independent variables under consideration exercised a statistically significant impact on tariff rates with the direction of this impact corresponding (Y) or contrary (N) to the predicted one. Subscript "a" denotes that the impact indicated refers to the models for total foreign trade; otherwise, models for trade with non-CIS countries are implied. For the variables marked with an asterisk, estimates only for selected years are available. This Table is based on Table A3 (Appendix A), though for the variables *Inv* and *Sh*4 additional information based on Table A1 is included in parentheses. For the variable *NEnt*, additional information in parentheses refers to the single regression models where this variable was substituted for the variable *Emp*.

we summarize information on the direction of statistically significant effects of the independent variables on tariff rates according to stepwise backward-selection linear regressions. Among the commodity market variables, the variable *ShImp* exercised a stable, statistically significant impact consistent with the pressure group hypothesis and the stagnant industry support hypothesis. At the same time, the direction of influence of the variable ΔOut does not support these hypotheses. The impact of the variable *ShExp* was in three cases consistent with the predictions of the liberalization hypothesis and the foreign repercussions hypothesis, but the impact of the variable *RExp* was contrary to what was predicted. The variable *ShImpI* exercised a stable impact consistent with the fiscal component of the liberalization hypothesis, but contrary to the foreign repercussions hypothesis. The variables ΔImp and $\Delta ShImp$ seem to exercise no stable influence on the level of tariff rates.

The situation with the sectoral variables *Inv*, *Loss*, *Debt*, *Sh*4, and *ShInv* is similarly unsettled. Part of the problem can be associated with excessive collinearity, which forced us to drop some variables for various years. Nevertheless, the impact of the variable *Prof* seems to provide support to the pressure group hypothesis and the stagnant industry support hypothesis, and the impact of the variable *Wage* is consistent with the stagnant industry support hypothesis for the period 1993–1996.

Special attention should be paid to the influence of the variables *Emp* and *NEnt*. As noted in the Data Appendix, they are strongly correlated; thus, when they enter our regressions simultaneously, their impacts often appear statistically insignificant. However, when *either* of these variables is excluded, the remaining variable exercises a positive impact on the level of tariff rates that is in most cases statistically significant, as can be seen in Tables A1 and A3. This result corresponds to the logic of the stagnant industry support hypothesis. The positive effect on tariffs by *NEnt* or *Emp*, however, contradicts the standard logic of the pressure group hypothesis that considers industry concentration as a principal factor of lobbying efficiency, with employment size being a factor of secondary importance.

So much for Variant 1 of our models. As far as Variant 2 is concerned, we were unable to trace any stable year-to-year impact of the independent variables on the level of tariff rates. However, the *exclusion* of different independent variables from the data set often leads to an increase in the value of the R_a^2 statistic (not shown in Tables A2 and A4). This can be interpreted as evidence that the presence of irrelevant variables could hide actual relationships between the political economy factors and the level of tariff rates.

Several conclusions can be drawn from the results of testing single regression models. First, there is a small group of variables (ΔOut, *ShImp*, *ShExp*, *ShImpI*, *Emp*, and *NEnt*) that are likely to exercise a stable impact on the level of tariff rates during the entire period. However, the observation of this impact does not allow us to make an unambiguous statement in favor of any of the hypotheses under consideration. Second, there seem to be considerable differences in the impact of some variables in different years. Third, the large discrepancies between Variant 1 and Variant 2 should be explained. All of these facts lead us to the task of estimating different regression models on a yearly basis for each of our hypotheses in order to compare their explanatory power more clearly.

5.2. Testing Regression Models for Individual Hypotheses

In this section we will discuss the results obtained by testing regression models that include only those independent variables that are considered to be relevant to the particular hypotheses. It appears that these models can provide deeper insight into the political economy mechanisms of tariff formation than the models that include (rather mechanically) all the independent variables used in the study. The central problem with the formulation of the "hypothesis-specific" models consists in the exclusion of the collinearity effects that can lead to the indeterminacy of regression results. Description of the respective regression models and principles of their construction is presented in Section DA2 of the Data Appendix. The results of testing these models are summarized in Appendix B.[9]

First of all, we should emphasize the substantial degree of variance in the dependent variables that is explained by the independent variables in 1993–1997 (as measured by the *F*-ratio) for the pressure group hypothesis, the stagnant industry support hypothesis and the liberalization hypothesis: significance levels are 99 per cent in all cases except for Variant 1 of the pressure group hypothesis (1993). In Variant 1 (which includes the maximum number of independent variables) of the pressure group hypothesis, the value of the R_a^2 statistic never falls below 0.677 in 1994–1997. For the liberalization hypothesis, the R_a^2 statistic in models for 1994–1997 always exceeds 0.733. As far as the stagnant industry

[9] The results of our analysis can in principle be influenced by the effects of the tariff unification process. For a discussion of this problem, see the Data Appendix, Section DA3.

support hypothesis is concerned, the value of the R_a^2 statistic is somewhat lower than in the hypotheses mentioned above, though it never falls below 0.65 during the period 1994–1997. Moreover, it is the only hypothesis that provides a relatively good explanation for the tariff structure in 1993 (the value of the R_a^2 statistic exceeds 0.6 and is significant at the 99 per cent confidence level).

In contrast, the performance of the foreign repercussions hypothesis seems to be unimpressive. The values of the R^2 and R_a^2 statistics in the basic variants of this hypothesis as well as in different subvariants (not shown in Appendix B) are very low. The *F*-ratio is insignificant in Variant 1 of this hypothesis for all years. The exclusion of the variables *ShImp*, Δ*ShImp*, and *ShExp* in Variant 2 leads to an increase in the value of the *F*-ratio and provides statistical significance to the coefficients — with the predicted sign — on the variables *RExp* (1995–1997) and *ShImpI* (1996, both models, and 1997, model for total foreign trade). The former effect can be accounted for by the negative association between the variables *RExp* and *ShImp* for these years ($r < -0.65$ in all cases). The variable *ShIn* also exercises statistically significant impact on tariff rates in Variant 2 (1996, both models). However, the values of the R^2 and R_a^2 statistics in Variant 2 remain low. We can thus conclude that the foreign repercussions hypothesis should be rejected as a possible explanation for the tariff structure during the period 1993–1997.[10]

To estimate the comparative performance of the pressure group hypothesis, the stagnant industry support hypothesis and the liberalization hypothesis we need to analyze the direction of impact of the independent variables on tariff levels. It makes sense to begin with the liberalization hypothesis. Though the sectoral variables *NEnt* and *Sh*4 have in most cases the predicted sign and exercise a statistically significant impact on the dependent variable, the behavior of the variables Δ*Imp*, *ShExp* and *RExp* does not confirm the comparative advantage interpretation presented in Section 4.3. The coefficient on the variable *ShExp* is significant (at the 95 per cent confidence level) and has the predicted sign only in models for 1994 and 1995. The coefficient on the variable *RExp*, in turn, is either insignificant or, when significant, has a sign contrary to that predicted.

[10] This finding is broadly consistent with the fact that questions of Russian import tariff policy did not play any part in most trade disputes that led to trade sanctions (or the threat thereof) against Russian exports during the period studied.

The most notable feature of the liberalization hypothesis is the statistically significant positive impact of the variable *ShImpI* on the level of tariff rates in models for 1993 and 1994 (Variants 1 and 2), 1995 (Variant 1), 1996 and 1997 (Variant 1, model for trade with non-CIS countries). This result corresponds to our expectations concerning the fiscal role of import protection policy in the economy in transition.

Let us turn to the record of the alternative hypotheses. The pressure group hypothesis and the stagnant industry support hypothesis rely on the same set of commodity market variables. The values of the R^2 and R_a^2 statistics for both hypotheses are also very close. This makes the task of differentiating among these hypotheses quite complicated. However, the results of our analysis seem to testify to the comparatively better performance of the stagnant industry support hypothesis. The following arguments on this point can be put forward.

1) In the context of the stagnant industry support hypothesis, the variable *ShImp* exercises a statistically significant impact on the level of tariff rates in the models for 1993, 1995, and 1996–1997 (model for trade with non-CIS countries) in the predicted direction. For the pressure group hypothesis, this impact is traced for the same years, but the significance level is always lower. In the pressure group hypothesis, a positive coefficient on the *ShImp* variable is significant at the 90 per cent confidence level in 1993 and 1996–1997 (as compared with the 99 per cent confidence level in the former and the 95 per cent confidence level in the two latter cases for the stagnant industry support hypothesis in the models for the same years); for 1995, the confidence level is equal to the 95 per cent (as compared with the 99 per cent for the stagnant industry support hypothesis).
2) The impact of the variable *NEnt* in the pressure group hypothesis is always statistically significant but its direction is contrary to expectations. The same is true for the variable *Sh*4, 1994–1997: whenever it exercises a statistically significant influence on the level of tariff rates, the direction of this influence is negative, not positive. The coefficient on the variable *Pri* is always insignificant. Thus we can conclude that *neither* of the sectoral variables used to test the pressure group hypothesis exercises the expected influence on the tariff levels.[11] The only exception is Variant 1 for 1993 where the coefficient

[11] The variables *NEnt* and *Sh*4 are closely associated with the variables *Mon* and *Stat*, respectively. A substitution of the latter variables for the former demonstrates a strong negative (counterintuitive) impact of the variable *Stat* and a positive (intuitive) impact of the variable *Mon* on the level of tariff rates.

on the variable *Sh*4 has the expected sign and is statistically significant. But for this year the variable *Sh*4 is positively correlated with the variable *Debt* (r=0.8), so that this impact can indirectly reflect a relationship characteristic of the stagnant industry support hypothesis.

3) To the contrary, the coefficients on the variables *Emp* and *Loss* in the stagnant industry support hypothesis are always statistically significant and have the predicted signs both in Variants 1 and 2 of our models. Moreover, due to the fact that the variable *Emp* is positively correlated with the variable *NEnt*, it is reasonable to suppose that the relatively high values of the R^2 and R_a^2 statistics for the pressure group hypothesis are accounted for not by some mysterious impact of the variable *NEnt* but by the omitted variable effect, *i.e.*, by the indirect impact of the variable *Emp*. The same is true for the variable *Sh*4 which is negatively correlated with the variable *Loss* (in Variant 1, $r < -0.59$ in 1993–1994 and $r < -0.65$ in 1995–1997). These effects can also explain the high scores of the variables *NEnt* and *Sh*4 in the liberalization hypothesis.

The variable *Debt* also exercises a statistically significant impact on the structure of tariff rates in 1993. (It is important to note that this variable is calculated for the beginning of 1993 and thus can be regarded as a determinant of the tariff structure established on March 15, 1993.)

Other things being equal, all this makes us consider the stagnant industry support hypothesis in a more favorable light than the pressure group hypothesis. However, there are some puzzling effects associated with this hypothesis that deserve special attention. First, the coefficient on the variable *Debt* in 1995 (Variant 1), 1996 (both models, Variant 2), and 1997 (the model for total foreign trade, both Variants, and the model for trade with non-CIS countries, Variant 2) is statistically significant but has the wrong sign.

The variable ΔImp exercises the expected influence on the level of tariff rates only in Variant 2 of the models for 1993 and 1994. It is also statistically significant in Variant 1 of both models for 1996, but the coefficient on it is not positive (as had been expected) but negative. This result suggests that a higher level of protection in 1996 was associated not with stronger but with weaker growth in imports.

Another important point is that the variable ΔOut seems to exercise no regular expected impact on the level of tariff rates. A statistically significant negative impact of this variable was found in both models for 1996 (Variant 2), and in the model for total foreign trade, 1997 (Variant 2). This impact corresponds to our expectations, though the significance

level is quite low (90 per cent in all cases). Mechanisms accounting for the positive impact of the variable ΔOut on the level of tariff rates in 1993 and 1995 are much less clear.

To search for an explanation of these puzzles, we attempted to formulate "ideal" regression models that provide best approximation of the relationships between the independent and dependent variables. These models were constructed on the basis of the two hypotheses that appeared to perform most successfully according to the R^2 and R_a^2 statistics as well as the individual variable impact — *i.e.*, the stagnant industry support hypothesis and the liberalization hypothesis.

5.3. "Ideal" Regression Models

To construct the "ideal" regression models, the variables peculiar to the liberalization hypothesis — *ShExp*, *RExp*, and *ShImpl* — were added to the set of variables used to test the stagnant industry support hypothesis. Then regressions were calculated on an iterative basis for each year with the exclusion of statistically irrelevant variables. The procedure was organized as follows. At the first stage, a regression equation was estimated where one of the variables was omitted from the initial set of variables, with the impact of this omission on the values of the R_a^2 statistic and the *F*-ratio being estimated. Then this variable was introduced back into the equation, and the next one omitted, and so on. After this process was accomplished, variables that appear to be statistically insignificant *and* whose exclusion leads to an *increase* in the values of the R_a^2 statistic and the *F*-ratio were dropped from the initial set of variables, and the new "basic" set of variables was formed. At the second stage, the same operations were performed, and so on until the set of variables was identified in which *all* variables exercise a statistically significant impact on the level of tariff rates and the value of the R_a^2 statistic is maximized. The "ideal" regression models thus formed are presented in Appendix C.[12]

The analysis of the "ideal" regression models allows us to formulate the following conclusions. First, there is a strong impact of the variables *Emp* and *Loss* along the lines of the stagnant industry support hypothesis. Second, the only commodity market variable that enters Variant 1 of

[12] Unlike our previous models where we compare different hypotheses (and thus skip testing Variant 3 of our models that does not include the variable ΔOut), here we estimate the "ideal" models in three variants covering all commodity types included in our database.

the "ideal" regressions for all years is the variable *ShImpI*. Third, the expected impact of the variable *ShImp* is traced only for 1995–1997 in models for trade with non-CIS countries (and also for 1996, model for total foreign trade). The exclusion of *either* of these two variables from the "ideal" models leads to a very slight decrease in the value of the R_a^2 statistic (no more than on 0.05) and a rise in the degree of statistical significance of the coefficient on the remaining variable. It is important to note that there is *no* association between the variables *ShImp* and *ShImpI* in the sense of correlation or relationships in auxiliary regressions, and thus both variables can be judged to be important for the explanation of the protection structure in these years.[13]

The variable *ShImpI* is also the only variable relevant to the liberalization hypothesis that enters our "ideal" regression models. Two interpretations of this fact are possible. First, the government can be interested in alleviating import pressure on stagnant industries *as well as* in maximizing tariff revenues. Second, the government can try to limit the import competition on the markets for the main commodity types produced by stagnant industries, with the "side effect" of raising tariff revenues. The latter interpretation is less likely due to the well-known priority given to fiscal considerations in such aspects of tariff policy as fixing compound tariff rates (see Section 2). In any case, results of the "ideal" regression models can be considered to support the synthetic "stagnant industries — tariff revenues" hypothesis, according to which government policy actually provides both support for stagnant industries and additional revenues to the budget.[14]

Now we should turn to the strange impact of the variables ΔOut and ΔImp. For 1993–1995, a counterintuitive positive impact of the variable ΔOut is found. This result suggests that a higher level of tariff rates is associated with a less intensive decrease in output. Perhaps this is a sign that the government tried to support those industries that were able to "fight for survival". This conclusion also can hold true for 1996 when

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[13] In Variant 1 of the "ideal" regression models for 1996, inclusion of the variable *Inv* leads to a slight increase in the value of the R_a^2 statistic as well as an increase in the statistical significance of the variable *ShImp* (to the 95 per cent level), whereas the statistical significance of the variable *ShImpI* falls to the level of 90 per cent in the model for trade with non-CIS countries and even lower in the model for total foreign trade.

[14] It is worth noting that the influence of the variable *ShImpI* can be considered as one of the factors explaining the stability of the tariff structure in 1995–1997 (see Data Appendix, Section DA4).

a higher degree of protection was associated with a less intensive increase in imports and a less intensive decrease in investments.[15] It seems that the impact of the variable *Δlmp* suggests that the tariff structure of 1995–1996 was oriented toward the protection of industries which, though suffering from intensive import penetration (variable *ShImp*), were able to counteract a further increase of imports more or less successfully. A less optimistic interpretation is that the government preferred to support industries facing a shrinking domestic market, for which the level of import penetration (in physical terms) was high, whereas the value of imports was falling.

Finally, some discussion on the impact of the variable *Debt* is appropriate. Its coefficient turns out to be significant with the predicted (positive) sign only in the model for 1993. In models for 1994–1997, the sign is negative (though statistically significant only in 1997).[16]

The results presented above provide a sound basis for describing the main forces governing the structure of tariff rates during the entire 1993-1997 period.[17] For this purpose, we estimated OLS regression models based on pooled data with dummies for each year.[18] The results are presented in Table D1 (Appendix D).[19] As "variable-specific" dum-

[15] Positive impact of the variable *Inv* can be traced in Tables B4–B5. It is possible, however, that this impact is caused by the negative association between the variables *Inv* and *Loss* ($r = -0.563$). The impact of the variable *Δlmp* in 1996 is discussed in Data Appendix, Section DA5.

[16] It is not likely that this difference is caused by our choice of the variables to test models for 1993 (see Data Appendix, Section DA6).

[17] One important question that remains to be discussed in the context of the "ideal" regression models for particular years relates to their adequacy for the explanation of changes in tariff rates. This question is explored in the Data Appendix, Section DA7.

[18] Since the number of commodity types in our database is different for 1993–1995 and 1996–1997, we estimated Variants 1–3 of the "ideal" model for pooled data with identical data sets based on the 1993–1995 commodity bundles.

[19] We experimented also with different "variable-specific" dummies that were intended to reflect periods of stability in coefficients on the independent variables in the "ideal" models for individual years. Though these dummies appeared to be statistically significant in most cases, their inclusion *never* changes either the values of the R^2 and R_a^2 statistics or the coefficients on the independent variables of the study (and even the values of their *t*-statistic) as compared with the panel data models where these "variable-specific" dummies were absent. Thus, we can conclude that the relationships discovered by using panel data technique are quite stable during the entire period.

mies do not appear important to the construction of models, we also applied to our data the GLS random-effects regression technique used to analyze panel data (Table D2).

Both tests indicate the existence of a relatively stable political economy mechanism, the main features of which we have already discussed when dealing with the results of "ideal" regression models for each particular year. The impact of the variables *ShImp*, *ShImpI*, *Emp*, and *Loss* is consistent with the "stagnant industries — tariff revenues" hypothesis.[20] At the same time, for the entire period 1993–1997 it is not possible to trace any uniform relationship between the variables ΔInv and ΔOut and the level of tariff rates, and the impact of these variables on tariff structure can be more fruitfully analyzed in the context of "ideal" models for each particular year.

Major novelties relate to the statistically significant impact of the variables *Inv* and *Debt* on the levels of tariff rates. While the impact of the variable *Inv* in Variants 2 and 3 corresponds to the logic of the stagnant industry support hypothesis, the impact of the variable *Debt* is contrary to the reasoning underlying that hypothesis. We are unable to provide any reasonable explanation for the latter effect. One possibility is that the variable *Debt* reflects the influence of some political economy variable(s) that does not enter our variable set.[21] However, the exclusion of this variable from our "ideal pooled models" leads to a negligible decrease in the value of the R_a^2 statistic or the chi^2 statistic. For example, in Variant 1 of the model for trade with non-CIS countries, the exclusion of the variable *Debt* decreases the R_a^2 statistic from 0.682 to 0.676 (in the OLS regression model with year dummies) and decreases the chi^2 statistic from 272.24 to 264.40 (in the GLS random-effects regression

[20] In the OLS regression models based on pooled data, we estimated the individual effect of the variable *ShImpI* in order to see whether the simple "tariff revenue" hypothesis is an adequate tool to analyze the structure of tariff rates. In the model for trade with non-CIS countries, the value of the R_a^2 statistic equals 0.169 in Variant 1 and falls below 0.1 in Variants 2 and 3. In the model for total foreign trade, the values of the R_a^2 statistic are *negative*. We can conclude on this ground that the tariff revenue motive is closely associated with the motive of protecting stagnant industries. This fact supports our "synthetic" interpretation of these motives.

[21] There are no signs that the variable *Debt* is strongly correlated with any variable used in this study or demonstrates a significant degree of association with other variables in auxiliary regressions.

model, with the respective values of the R^2 statistic falling by less than 0.01). Thus we can conclude that the main part of variance in tariff rates is explained (especially in Variant 1 of our models) by variables peculiar to our synthetic "stagnant industries — tariff revenues" hypothesis.

It is worth noting that the values of the R^2 and R_a^2 statistics are always highest in Variant 1 of all models, which include those commodity types for which *variables of import penetration could be calculated*, irrespective of whether these variables exercise a statistically significant impact on tariff rates in our models or not. The only reasonable explanation that is not related to an unknown potential bias in our database has to do with the informational aspect of the decision-making process. It is possible that the government pays principal attention to these commodity groups precisely for the reason that the degree of import competition can be estimated. Probably this is a consequence of our reliance on "physical" measures of output and import penetration. Whereas the individual producers acting as the members of pressure groups can estimate the variables ΔOut and *ShImp* in value terms (expressed in rubles or US dollars), these estimates could be unavailable to the government due to the enormous amount of calculations needed to produce them (especially during a period of intensive exchange rate fluctuations, when the calculation of these variables in a single currency would have required month-to-month adjustments).

6. CONCLUSIONS

The results of four tests performed in this study — *i.e.*, the single regression test, the test of individual hypotheses, and the "ideal" regression tests for each year as well as for panel data — appear to provide support for the synthetic "stagnant industries — tariff revenues" hypothesis. The emphasis on limiting import pressure for industries employing large number of workers and suffering from unfavorable business conditions is quite common in government practice, as indicated by the studies of political economy mechanisms of protection in industrial countries. There are, however, considerable differences in the findings of our analysis as compared with the results of similar studies for other countries.

First of all, we should emphasize that the share of variance in protection rates explained by our models is in most cases much larger than in most studies of this sort performed by western scholars. For example, in studies for 10 industrial countries surveyed in the work by Anderson and

Baldwin (1987), the values of R_a^2 statistic never exceed 0.51, whereas in Variant 1 of our "ideal" models they are higher than 0.72 in all cases except one (see Table C1).[22] This finding can be interpreted as evidence for a much more important role played by political economy forces in determining tariff rates in Russia. In fact, this is what is be expected due to the absence in Russian case of a "historical level of protection" that exercises an influence on the structure of tariff rates in stable market economies.

Second, we found no expected impact from the variables usually assumed to reflect the logic of the pressure group hypothesis. This result is likely to be accounted for by the transitional nature of the Russian economy, with an abundance of firm-specific methods of rent-seeking (lobbying for subsidies, tax write-offs, and so on) that do not require inter-firm cooperation. In this sense, tariff regulation in Russia is unlikely to serve as an important source of the policy-induced distortions typically associated with rent-seeking activity.

Third, the continual budgetary concerns of the revenue-constrained Russian government are likely to explain the strong positive association between the level of tariff rates and the share of individual commodities in the total volume of import flows. Failure to ensure the successful collection of other taxes has made tariff revenues one of the most reliable sources of government financial resources, generating (at least partial) subservience of the tariff policy to the fiscal preferences of the government.

As our "ideal" regression models demonstrate, the mechanism governing the tariff structure was relatively stable during the entire period, 1993–1997. Thus we can conclude that the structure of the *ad valorem* tariff rates formed in 1995–1997 reflects the conditions of the political equilibrium established by the "stagnant industries — tariff revenues" political economy mechanism. What can be said about the main features of this equilibrium in respect to economic efficiency and the prospects of liberalizing tariff regulation in Russia?

It seems that there are reasons to expect that the contradictions between political and economic efficiency usually cited by the researchers of tariff policy (see, *e.g.*, Magee *et al.*, 1989, pp 50–52) are in the Russian case not as sharp as one could expect from general considerations. As noted above, the formation of tariff policy seems to be rather

[22] The values of the R_a^2 statistic in the single regression models described in Section 5.1 are even higher, being in the range of 0.849–0.925.

free from pressure group activity and the economic disproportions associated with it.[23] To use the classification put forward by James Buchanan (see Buchanan, 1980), this is to say that the losses associated with the first level of rent-seeking (affecting government decisions) as well as the second level (competition among government officials for positions with access to trade policy decisions and thus to appropriating lobbying contributions) are minimized. Moreover, providing support to stagnant industries does not cause additional disproportions associated with the third level of rent-seeking (resource relocation to industries benefiting from government policies), because rents created in these industries by import tariffs are not high enough to attract new firms from the outside economy.

These rents, however, alleviate the market pressures on the firms in stagnant industries and delay the resource outflow to more productive spheres of the economy. But the dynamics of business activity in Russian manufacturing testify convincingly that tariff protection is by no means sufficient to eliminate these pressures completely. As a consequence, the existing level of tariff protection, while preventing stagnant industries from a complete collapse, can not be considered as an insurmountable obstacle to industrial restructuring.

In general, there are two reasons to expect that the "stagnant industries — tariff revenues" mechanism that currently accounts for the relatively high tariff levels in particular industries will contribute to *lowering* tariff rates as economic transition proceeds. On the one hand, the microeconomic adjustment and the exit of less-efficient firms from stagnant import-competing industries will decrease the number of loss-making enterprises as well as the number of workers employed in these industries. In this sense, the decline in the absolute size of stagnant industries would possibly lead not to an increase but to a *decrease* in the level of protection, and thus broaden the scope of economically efficient import operations.[24] On the other hand, macroeconomic adjustment ac-

[23] It is important to repeat that this conclusion is based on the analysis of data for the main commodities of Russian foreign trade, with some variables used to estimate lobbying potential of pressure groups being calculated at the sectoral level. It is possible that introducing more detailed commodity classification and/or substituting commodity market variables for the sectoral variables such as *NEnt* and *Sh*4 would bring somewhat different results. However, the high explanatory power of our models (in terms of basic regression statistics) allows us to suggest that they can serve as an adequate ground for conclusions like those presented in the text.

[24] This effect is theoretically well-established; see *e.g.* Cassing and Hillman (1986).

companied by sound budget policies should lead to the alleviation of the revenue shortfall, making tariff receipts less important for the government.

Thus, the results of our analysis suggest that the political economy mechanism of tariff regulation which emerged in the recent Russian institutional setting as a more or less natural response to the crisis environment will possibly serve as an important factor contributing to the dismantling of tariff barriers to imports under improved economic conditions. Wide-scale liberalization, then, will likely be an endogenous product of successful micro- and macroeconomic adjustment, rather than emanating from the exogenous efforts of "benevolent" politicians or political advisers.

DATA APPENDIX

DA1. Basic Information on the Construction of the Econometric Models

The initial database formed for the purpose of econometric analysis included more than 110 commodity types classified by the official statistics as the "main commodities of Russian foreign trade". Some commodity types were excluded from the initial database because it was impossible to calculate values of the independent variables for them, and/or because these commodity types presented the most serious doubts about the reliability of the import data (*e.g.*, cigarettes, alcohol and non-alcohol drinks). The resulting database comprises 100 commodity types. Data were taken from various issues of "The Russian Statistical Yearbook" as well as yearly publications "Russia in Figures", "Customs Statistics of Russian Foreign Trade" and "Russian Industry".

Official statistics do not make it possible to calculate all commodity market variables for all commodity types. One of the reasons is that the State Customs Committee does not collect — or does not publish — data on the physical volume of exports and imports for some goods (examples are steam boilers, combustion engines, excavators, pumps & compressors, watches, carpets, furs & fur clothing, *etc.*). For broad trade categories (such as ferrous products; equipment for metal works, printing industry, and agriculture; medical equipment; organic and non-organic chemicals; medications; plastics & plastic products, *etc.*) it is impossible to establish any unified measure of physical volume of trade. The diversity of goods consolidated under these commodity categories precludes the mechanical summation of trade items even when they are measured in the same units (like different types of cotton textiles), but in many cases units of measurement are also different (*e.g.*, trade flows in some articles of the "sown timber" category are measured in tons, and the others are measured in cubic meters).

Another problem caused by the incompatibility of physical volume measures has to do with the calculation of such variables as shares of imports (exports) in domestic output and consumption. In some cases, units of physical volume used by customs statistics do not coincide with those used by Goskomstat in output statistics. For example, data on imports and exports of fertilizers (3 positions in our database) are presented in tons, whereas data on physical volume of output are ex-

pressed in tons of "standard 100 per cent fertilizing equivalent". Likewise, data on imports of canned products (also 3 positions in our database) are presented in tons, whereas data on physical volume of output are expressed in millions of "standard cans".

Finally, the most specific problem has to do with the commodities produced by the non-ferrous metals industry. Absolute data on physical volume of production in this industry are considered by Russian government as "strategically important" and do not appear in publications (official data sources report only indices of year-by-year changes in the physical volume of production of the respective commodity types).

Due to these data problems, three data sets were created. The first one includes all variables listed in Table 2. In the second one, the variables *ShImp*, Δ*ShImp*, and *ShExp* were excluded; in the third data set, we have excluded also the variable Δ*Out*. These three data sets form the basis for estimating three variants of the different models constructed in Sections 5.1-5.3. It should be noted that the direct comparison of the hypotheses under consideration (Sections 5.1-5.2) can be accomplished only with Variants 1 and 2 because they include the commodity market variable Δ*Out* which is used to test the pressure group hypothesis and the stagnant industry support hypothesis.

Official statistics began to present unified data for imports from and exports to CIS and non-CIS countries only since 1995. For 1992–1994, data on trade flows from and to the CIS countries were presented for commodity types different from those for the trade flows from and to non-CIS countries. Units of physical volume of imports and exports were in some cases also different. The reason was that the scheme used for measuring the commodity flows between the republics of the former USSR was for several years applied to the Russian trade with the newly independent CIS countries.

As a consequence, for 1996–1997 we can calculate the values of independent variables using data on the total foreign trade flows (*i.e.*, trade flows from and to CIS as well as non-CIS countries), whereas for 1992–1994 these variables can be calculated only for trade flows from and to non-CIS countries. For 1996 and 1997 we should test the political economy hypotheses with two sets of independent variables to estimate the degree of similarity between the influence of factors related to total foreign trade and to trade with non-CIS countries. Thus, two models — one for total foreign trade and another for trade with non-CIS countries — have been constructed and estimated for these years. In the former model, independent variables were calculated with the data on general

exports and imports (*e.g.*, *ShImp* is the share of *total* imports of a commodity in national consumption, *RExp* is the net *total* exports ratio, *etc.*), whereas in the latter model data on exports and imports in the trade only with non-CIS countries were used (with the variables being the share of imports of a commodity *from non-CIS countries* in national consumption, the net ratio of exports *to non-CIS countries*, *etc.*). For 1993–1995, only models for trade with non-CIS countries were tested.

As has been stated in Table 1, the tariff structure of 1993 is likely to be influenced by the political economy developments of 1991–1992; thus, we need to calculate commodity market variables for these years. Meanwhile, the statistics for Russian foreign trade are available only since 1992 (the first year after the breakdown of the USSR), so we can not calculate for 1992 such variables as ΔImp and $\Delta ShImp$. Data on the physical volume of output in Russian Federation exist for the entire period of 1991–1997. Nevertheless, there are reasons to expect that the output statistics of 1992 are less reliable because of the limited capabilities of the Russian statistical service during the first year of its autonomous existence. Thus, the values of the variables ΔOut and *ShImp* calculated for 1992 seem to be also less reliable than those calculated for 1993–1997 due to the (probable) incomplete comparability of output data. On this basis, we used for the study of tariff structure in 1993 the independent variables calculated for 1993, not for 1992. Such a procedure is further based on the assumption that the changes in foreign trade and output generated by the economic liberalization of 1992 were profound enough to affect the dynamics of the political economy factors both in 1992 and 1993, so the observation of commodity market variables for 1993 can serve as a reasonable approximation for the developments that took place in 1992.

In Table DA1, information is presented on the size of commodity bundles used to estimate all variants of the different models. The number of changes in tariff rates for the commodity types included in these bundles is also indicated.

Two other important points on the construction of econometric models should be emphasized. For 1993–1994, it was impossible to find data for the calculation of the variables *Pri* and *ShIn* (direct foreign investments were quite small in these years, and the data on input prices were not provided in open statistical sources). In addition, there is no information on the share of enterprise debt in arrears in total liabilities to suppliers. Thus, for the calculation of the variable *Debt* we used the share of enterprises with overdue indebtedness to suppliers.

Table DA1. Commodity Bundles Used to Test Political Economy Hypotheses.

	Variant 1	Variant 2	Variant 3
1993 Foreign trade with non-CIS countries	29 commodity types, 14.491 per cent of imports. 14 tariff changes.	56 commodity types, 30.615 per cent of imports. 31 tariff changes.	99 commodity types, 52.81 per cent of imports. 61 tariff changes.
1994 Foreign trade with non-CIS countries	29 commodity types, 14.491 per cent of imports. 22 tariff changes.	56 commodity types, 30.615 per cent of imports. 45 tariff changes.	99 commodity types, 52.81 per cent of imports. 75 tariff changes.
1995 Foreign trade with non-CIS countries	29 commodity types, 13.223 per cent of imports. 11 tariff changes.	56 commodity types, 26.092 per cent of imports. 17 tariff changes.	99 commodity types, 50.59 per cent of imports. 37 tariff changes.
1996 Total foreign trade	31 commodity types, 16.984 per cent of imports. 5 tariff changes.	57 commodity types, 27.941 per cent of imports. 8 tariff changes.	100 commodity types, 49.86 per cent of imports. 14 tariff changes.
1996 Foreign trade with non-CIS countries	31 commodity types, 13.827 per cent of imports. 5 tariff changes.	57 commodity types, 23.807 per cent of imports. 8 tariff changes.	100 commodity types, 46.36 per cent of imports. 14 tariff changes.
1997 Total foreign trade	31 commodity types, 17.521 per cent of imports. 0 tariff changes.	57 commodity types, 27.628 per cent of imports. 0 tariff changes.	100 commodity types, 51.123 per cent of imports. 0 tariff changes.
1997 Foreign trade with non-CIS countries	31 commodity types, 14.072 per cent of imports. 0 tariff changes.	57 commodity types, 23.178 per cent of imports. 0 tariff changes.	100 commodity types, 47.388 per cent of imports. 0 tariff changes.

DA2. Solving Collinearity Problems

For identification of collinearity problems, correlation matrices for each set of independent variables were calculated. In our regression models, we were forced to drop the variables *Mon* and *Stat* due to their very close association with the variables *NEnt* and *Sh*4, respectively (the correlation coefficients being higher than 0.8 for most years). There is also a substantial degree of correlation between the variables *NEnt* and *Emp* (the correlation coefficient is in most cases higher than 0.9). For these reasons, we have not considered variables *Emp*, *Mon*, and *Stat* when testing the pressure group hypothesis and the liberalization hypothesis; it was assumed that their impact can be captured by the variables *NEnt* and *Sh*4, which have the further advantage of being intensively used in empirical studies of this type. As far as the variable *InInv* is concerned, official statistics present data for only a limited number of industrial sectors. At the same time, data on the variable *ShIn* are at hand for all industrial sectors and often correlate significantly with the available estimates of the variable *InInv*. For these reasons, we dropped the variable *InInv* from our analysis.

As a further step to identify potential collinearity problems in the regression models for different hypotheses (see Section 5.2), auxiliary regressions were calculated for each of the independent variables in the variable sets intended to be used in tests of individual hypothesis performance. As a result, strong links with other independent variables were discovered for the following sectoral variables: *Prof* (the pressure group hypothesis); and, *Wage* and *Prof* (the stagnant industry support hypothesis). Since the inclusion of these variables in the regression models could lead to the indeterminacy of regression results, they were not used in our analysis. Additional reasons for the exclusion of these variables are that the variable *Prof* refers only to officially recorded profits, whereas the variable *Wage* is related to the wages *due*, not wages *paid*. As a consequence, they could fail to provide information necessary to estimate the real scope of financial problems experienced by enterprises belonging to specific industrial sectors. The variable *Inv* appeared to have a significant R_a^2 statistic (with the values larger than 0.7) in auxiliary regressions for 1992–1995 (being negatively correlated with the variables *Debt* and *Loss*), and was not considered in our models for these years.

The most important problem is associated with the relationship between the commodity market variables. The variables *ShImp* and Δ*ShImp* appear to be significantly correlated with one another in models for

1993–1994 and 1996–1997 (with r=0.739 in the models for 1993–1994, r=0.748 in the model for total foreign trade, 1996, r=0.658 in the model for trade with non-CIS countries, 1996, and r=0.861 in the model for total foreign trade, 1997), and they demonstrate a significant degree of association in auxiliary regressions. The value of the R_a^2 statistic in auxiliary regressions for these variables is in most cases higher than 0.6, when both variables are included in the models. At the same time, exclusion of *either* of these two variables from the models leads to a sharp decrease in the value of the R_a^2 statistic in auxiliary regressions for the remaining variable. Since both variables *ShImp* and Δ*ShImp* are of crucial importance for our study, we have estimated 3 special forms of Variant 1 for the pressure group hypothesis, the stagnant industry support hypothesis and the foreign repercussions hypothesis: Subvariant 1.1 with the inclusion of both variables, Subvariant 1.2 with the exclusion of the variable *ShImp* and Subvariant 1.3 with the exclusion of the variable Δ*ShImp*.

However, testing the Subvariants 1.2 and 1.3 did not produce any additional information as compared with testing Subvariant 1.1, and for reasons of presentation we have not included Subvariants 1.2 and 1.3 in Tables B1–B7, where the results of the regression analysis are demonstrated. Two exceptions are the pressure groups hypothesis and the stagnant industry support hypothesis in the model for total foreign trade, 1997. In this model, the variable Δ*ShImp* is also closely correlated with the variable Δ*Out* (r=0.870), so we have presented the results of testing Subvariant 1.3, which does not include the variable Δ*ShImp*.

In both models for 1996, the variables *ShImp* and Δ*ShImp* appear to be negatively correlated with the variable Δ*Out* ($r < -0.7$). However, specific subvariants of these models do not add any new information to that learned from the basic Subvariant 1.1.

DA3. Estimating the Significance of the Tariff Unification

To estimate the potential significance of the tariff unification process, for each year the degree of relationship was estimated between the level of tariff rates in the previous year and the absolute tariff changes during the year under consideration. As Table DA2 shows, tariffs on commodity types included in our database do demonstrate some signs of unification, in the sense that high tariff rates were less likely to be raised and

more likely to be decreased (the opposite being true for low tariff rates). However, the results of regressing tariff changes on tariff levels make clear that, though the relationship between the tariff level in the previous year and the absolute tariff changes in the year under consideration is quite strong (*F*-ratio being significant at the 95 per cent level in 5 out of 12 cases and significant at the 99 per cent level in 3 other cases), it accounts only for a small portion of changes in tariff levels (for Variant 3, 1995, where the association between tariff rates and tariff changes is the closest, $R^2 = 0.232$ and $R_a^2 = 0.224$).

Table DA2. Coefficients of correlation: tariff rates in a previous year to tariff changes in a given year.

Year	Variant 1	Variant 2	Variant 3
1993	−0.269	−0.310	−0.320
1994	−0.071	−0.325	−0.185
1995	−0.299	−0.395	−0.480
1996	−0.396	−0.29	−0.220

Note: In 1997, there were no changes in *ad valorem* tariff rates and *ad valorem* components of compound tariff rates (for commodity types included in our database).

This is probably caused by the fact that most of the commodity types with "peak" tariff rates (*e.g.*, alcohol, precious stones and metals, explosives, arms and military technique, equipment for gambling business, *etc.*) do not enter our database. Moreover, it could be noted that a negative correlation between the tariff changes and the tariff levels is present also in 1993, when there was in effect a shift from the almost uniform tariff structure of 1992 toward a more differentiated one. Thus we can conclude that the factor of tariff unification is unlikely to influence our analysis significantly.

DA4. Explaining the Stability of Tariff Rates.

The assumption on the role of governmental fiscal considerations captured by the variable *ShImpI* is reinforced by the stability of the tariff structure during 1995–1997. As has been stated in Table DA1, there were only few changes in *ad valorem* tariff rates and *ad valorem* com-

ponents of compound tariff rates in 1996, and no such changes in 1997. In Table DA3, correlation coefficients are presented that characterize the degree of association between the shares of specific trade goods in the total value of imports for different years (for 100 commodity types). It can be seen that there is a strong association between the values of the variable *ShImpI* in 1994 and 1996 (especially for the trade with non-CIS countries) as well as in 1996 and 1997. According to our synthetic "stagnant industries — tariff revenues" hypothesis, this stability of the values of the variable *ShImpI* can be seen as a factor of stability of the tariff structure in 1995–1997.

Table DA3. Correlation coefficients for the *ShImpI* variable.

	1993a	1994a	1996b	1996a	1997b	1997a
1993a	1					
1994a	0.593	1				
1996b	0.384	0.634	1			
1996a	0.379	0.781	0.871	1		
1997b	0.396	0.647	0.937	0.910	1	
1997a	0.356	0.691	0.787	0.946	0.919	1

Note: index *a* denotes that the data are related to foreign trade with non-CIS countries; index *b* denotes that the data are related to total foreign trade.

DA5. Explaining the Impact of the Variable Δ*Imp* in 1996

It can be supposed that the counterintuitive impact of the variable Δ*Imp* on the structure of tariff rates in 1996 is caused by the fact that this variable itself depends on the level of tariff rates established in 1995, and its positive relationship with the tariff levels in 1996 is due to the fact that there were few tariff changes during this year. Thus, the problem of endogenity mentioned in Section 1 could be suspected to affect our results.

However, the correlation coefficients between the tariff levels in 1995 and the values of the Δ*Imp* variable in 1996 are very low (see Table DA4). In other words, the impact of the variable Δ*Imp* probably reflects more important phenomena than a mere statistical relationship.

Table DA4. Correlation between the tariff rates in 1995 and the variable ΔImp in 1996.

Model for total foreign trade	
Variant 1	−0.227
Variant 2	−0.187
Variant 3	−0.127
Model for trade with non-CIS countries	
Variant 1	0.159
Variant 2	0.045
Variant 3	−0.093

DA6. Analyzing the specificity of the model for 1993

As noted in Section DA1, the variable *Debt* was calculated for 1993–1994 on a different basis than for 1995–1996. We also tested the "ideal" regressions for the latter years with the inclusion of the variable *Debt** denoting, like the variable *Debt* for 1993–1994, the share of enterprises with overdue indebtedness to suppliers. The impact of this variable does not differ significantly from that of the variable *Debt*.

As the set of independent variables in the "ideal" regression for 1993 does not include variables measuring change in the import flows from year to year, we recalculated this set for 1992 (basic set of independent variables used to analyze the tariff stricture of 1993 refers to 1993, not 1992; see Section DA1). In the "ideal" regression for 1993 based on 1992 data, coefficients on the variables ΔOut and *ShImpI* are not significant, and the values of the R^2 and R_a^2 statistics are 0.487 and 0.384 respectively, lower than in the "ideal" regression model based on 1993 data. This supports our initial assumption that the data for 1993 provide a better approximation of the developments in the turbulent year of 1992, for which statistics are less reliable.

DA7. Explaining the Changes in Tariff Rates

To explore the applicability of our hypotheses to the explanation of the *changes* in tariff rates, absolute changes in tariff rates were used as the dependent variable in the "ideal" regression models (constructed in Section 5.3 for the tariff *levels*) as well as in our conventional hypotheses. For 1995 and 1996, the values of the R_a^2 statistic in these regres-

sions are for the most part negative (and when positive, they never exceed 0.1). In the model for 1994, the R_a^2 statistic in the "ideal" regression is also small (0.1025). However, in the models for the pressure group hypothesis and the stagnant industry support hypothesis for 1994, the values of the R^2 and R_a^2 statistics are high (up to 0.6 in the former case and up to 0.5 in the latter case in different variants), but the coefficients on the independent variables are for the most part not statistically significant, and the direction of impact of these variables is not regular. Relatively high values of the R^2 and R_a^2 statistics seem to be caused by the fact that absolute tariff changes in 1994 were significantly correlated with the *level* of tariff rates in the same year (see Table DA5), and thus the impact of the independent variables on the tariff level is partially reflected in tariff changes. In other words, the relationship between the independent variables and tariff changes is purely statistical, not causal.

Table DA5. Correlation between the level of tariff rates and the changes in tariff rates during the year.

	Variant 1	Variant 2	Variant 3
1993	0.452	0.710	0.730
1994	0.655	0.475	0.627
1995	−0.0096	−0.068	−0.115
1996	−0.144	−0.01	0.107

For 1993, the values of the R^2 and R_a^2 statistics are even higher (in Variant 1 of the pressure group hypothesis and the stagnant industry support hypothesis), but statistically significant effects were found only for the variables ΔOut (in both hypotheses, with the direction of impact corresponding to that presented in Table C1), *Loss* (the stagnant industry support hypothesis) and *Sh*4 (the pressure group hypothesis). The variable *Debt* in Variants 1 and 2 of the stagnant industry support hypothesis (as well as in all variants of the "ideal" regression model) turned out also to be statistically significant, but has the wrong sign. It can be concluded that, though the independent variables do exercise some impact on the changes in tariff levels during 1993–1994, this impact is probably no more than a statistical reflection of the adaptation of tariff structures to the system of political economy factors described in Sections 5.1–5.3 of the text.

APPENDICES

A. Results of Testing Single Regression Models

Table A1. Single regression models (OLS technique), Variant 1.

	Model for trade with non-CIS countries					Model for total foreign trade	
	1993	1994	1995	1996	1997	1996	1997
Y	8.29 0.27	35.84 0.998	20.46 0.618	127.88 1.068	−50.41 −0.965	182.44 1.506*	−38.75 −0.676
Δ*Imp*	0.01 0.774	0.0071 0.456	0.0027 0.629	−0.019 −1.112	−0.0013 −0.054	−0.021 −1.453*	0.039 1.405*
Δ*Out*	0.19 3.129****	0.092 1.311	0.15 1.766*	0.011 0.152	0.073 0.529	0.14 1.350*	0.068 0.620
ShImp	0.35 3.578****	0.11 0.974	0.13 2.191**	0.16 2.022**	0.077 1.374*	0.14 1.830**	0.099 2.067**
Δ*ShImp*	−0.47 −3.85****	−0.136 −0.966	−0.018 −0.310	−0.18 −0.902	−0.035 −0.172	0.24 1.349*	−0.11 −1.935**
ShExp	−0.162 −1.939**	−0.16 −1.612*	−0.06 −0.776	−0.037 −1.052	0.000036 0.497	−0.0029 −0.830	−0.13 −1.630*
RExp	0.03 1.521*	0.064 2.507**	0.06 2.012**	0.031 1.328	0.012 0.536	0.048 1.423*	0.038 1.497*
ShImpI	2.18 1.772**	6.44 4.465****	4.07 1.809**	1.44 0.793	2.59 1.617*	0.28 0.164	1.42 0.797
Pri	no data	no data	−0.11 −1.928**	−1.18 −1.004	0.37 0.778	−1.83 −1.476*	0.27 0.638
Emp	dropped	dropped	dropped	dropped	dropped	dropped	dropped
Wage	0.034 0.490	−0.21 −2.591**	−0.22 −2.179**	−0.13 −1.639*	dropped	−0.23 −2.432**	dropped
Prof	−0.03 −0.010	−0.58 −1.685*	dropped	−0.13 −0.17	dropped	−0.69 −0.917	dropped
Inv	−4.54 −2.166**	−0.80 −0.327	4.71 1.395*	31.07 2.145**	2.81 0.553	47.07 2.764***	0.23 0.019
Loss	0.72 1.435*	−0.059 −0.079	−0.34 −0.785	dropped	0.26 1.801**	dropped	0.281 1.072
Debt	−0.427 −1.230	−0.032 −0.062	0.35 1.086	−0.52 −0.310	dropped	−1.356 −0.804	−0.053 −0.077

Continued from p. 57

	Model for trade with non-CIS countries					Model for total foreign trade	
	1993	1994	1995	1996	1997	1996	1997
NEnt	0.0003 2.664***	0.0006 4.535****	0.0008 5.664****	0.0005 1.90**	0.00025 2.095**	0.0007 2.262**	0.00023 2.413**
Mon	dropped	dropped	dropped	dropped	dropped	dropped	dropped
Sh4	0.297 0.815	0.308 0.725	0.013 0.078	−1.02 −1.10	−0.16 −0.503	−1.68 −1.710*	−0.049 −0.080
Stat	dropped	dropped	dropped	0.83 0.521	dropped	1.77 1.094	dropped
ShIn	no data	no data	3.05 1.734*	−3.23 −1.231	−0.39 −0.269	−4.94 −1.758*	0.37 0.233
R^2	0.893	0.917	0.925	0.919	0.849	0.907	0.861
R_a^2	0.786	0.833	0.838	0.827	0.734	0.801	0.740
F	8.37***	10.99***	10.63***	9.94***	7.38***	8.53***	7.10***

Notes.

Upper figure in a cell refers to the value of a regression coefficient,

lower figure refers to the value of *t*-statistic.

Y — Y-intercept

* — significant at the 90 per cent level;

** — significant at the 95 per cent level;

*** — significant at the 99 per cent level;

**** — significant at the 99.5 per cent level.

For the *F*-ratio, only 95 per cent and 99 per cent confidence levels are considered.

Table A2. Single regression models (OLS technique), Variant 2.

	Model for trade with non-CIS countries					Model for total foreign trade	
	1993	**1994**	**1995**	**1996**	**1997**	**1996**	**1997**
Y	−10.25 −0.324	20.98 0.391	30.40 0.926	192.34 1.125	0.90 0.010	115.45 0.886	−17.13 −0.162
ΔImp	0.04 3.702****	0.030 2.655***	0.0053 0.850	−0.007 −0.357	0.0064 0.379	−0.007 −0.498	0.0083 0.331
ΔOut	0.11 1.80**	0.026 0.389	0.0058 0.068	−0.067 −1.148	−0.044 −0.934	−0.077 −1.355*	−0.055 −1.149
RExp	−0.013 −0.706	0.026 1.307*	0.019 0.679	−0.0024 −0.108	−0.015 −0.753	0.016 0.613	0.0082 0.353
ShImpl	1.14 0.795	3.46 2.253**	2.45 0.887	−0.19 −0.092	0.53 0.306	1.94 0.873	2.10 1.046
Pri	no data	no data	−0.049 −0.569	−0.88 −1.061	0.034 0.040	−0.65 −0.764	0.30 0.309
Emp	dropped	dropped	dropped	dropped	dropped	dropped	dropped
Wage	0.156 1.663*	−0.067 −0.689	−0.063 −0.521	−0.0036 −0.040	0.066 0.341	−0.012 −0.131	−0.017 −0.077
Prof	0.195 0.443	−0.074 −0.159	dropped	−1.88 −0.907	dropped	−0.52 −0.319	dropped
Inv	−3.64 −1.036	−0.557 −0.148	0.14 0.034	dropped	−2.35 −0.461	dropped	dropped
Loss	0.65 0.753	0.36 0.390	−0.095 −0.227	−1.47 −0.916	0.26 1.324*	−0.38 −0.283	0.14 0.505
Debt	0.076 0.149	−0.079 −0.145	−0.019 −0.004	−0.099 −0.246	dropped	−0.63 −0.504	0.044 0.134
NEnt	−9.74e−7 −0.066	0.00025 1.613*	0.0003 1.527*	0.00013 0.341	0.00014 0.837	0.0003 1.054	0.00009 0.465
Mon	dropped	dropped	dropped	0.087 0.669	dropped	dropped	dropped
Sh4	−0.54 −1.166	−0.103 −0.208	−0.134 −0.664	−0.76 −1.332*	−0.27 −0.464	−0.66 −1.045	−0.307 −0.564

Continued from p. 59

	Model for trade with non-CIS countries					Model for total foreign trade	
	1993	**1994**	**1995**	**1996**	**1997**	**1996**	**1997**
Stat	dropped	dropped	dropped	dropped	dropped	0.514 0.487	dropped
ShIn	no data	no data	1.41 0.749	3.60 0.988	−0.20 −0.082	1.54 0.648	−0.14 −0.050
R^2	0.518	0.522	0.413	0.449	0.4361	0.459	0.442
R_a^2	0.397	0.402	0.249	0.282	0.298	0.296	0.306
F	4.30***	4.36***	2.52**	2.69***	3.16***	2.81***	3.24***

Notes.

Upper figure in a cell refers to the value of a regression coefficient,

lower figure refers to the value of *t*-statistic.

Y — Y-intercept

* — significant at the 90 per cent level;

** — significant at the 95 per cent level;

*** — significant at the 99 per cent level;

**** — significant at the 99.5 per cent level.

For the *F*-ratio, only 95 per cent and 99 per cent confidence levels are considered.

Table A3. Stepwise backward-selection linear regressions, Variant 1.

	Model for trade with non-CIS countries					Model for total foreign trade	
	1993	1994	1995	1996	1997	1996	1997
Y	102.76 2.278**	36.41 5.135****	78.44 1.839**	232.94 2.97***	−96.40 −2.013**	402.93 1.75**	−53.06 −1.344*
ΔImp	0.019 1.707*	0.011 0.803	0.0027 0.629	−0.0216 −1.567*	0.00093 0.04	−0.021 −1.453*	0.044 1.670*
ΔOut	0.203 4.165****	0.1004 1.70*	0.151 1.766*	0.119 1.362*	0.0738 0.562	0.142 1.35*	0.060 0.582
ShImp	0.346 4.332****	0.094 0.944	0.129 2.191**	0.128 1.855**	0.0703 1.34*	0.140 1.83**	0.113 2.579***
ΔShImp	−0.456 −4.57****	−0.115 −0.923	−0.0176 −0.310	0.212 1.319	0.025 0.164	0.235 1.349*	−0.122 −2.26**
ShExp	−0.242 −3.45****	−0.195 −2.344**	−0.059 −0.776	−0.0028 −0.832	0.00004 0.598	−0.0029 −0.83	−0.11 −1.61*
RExp	0.011 0.550	0.064 3.127****	0.061 2.01**	0.053 1.752*	0.00077 0.037	0.048 1.42*	0.0355 1.468*
ShImpI	2.611 2.535**	6.713 5.77****	4.07 1.81**	0.46 0.281	3.30 2.13**	0.285 0.164	1.44 0.865
Pri	no data	no data	−0.193 −2.12**	−1.35 −2.933***	0.766 1.617*	−1.83 −1.476*	0.414 1.014
Emp	0.020 2.697***	0.002 5.49****	0.0082 1.395*	0.0089 3.813****	0.0018 1.302	0.011 0.76	0.0025 2.018**
Wage	0.199 3.374****	−0.168 −6.36****	−0.217 −2.18**	−0.243 −2.673***	−0.03 −0.378	−0.234 −2.43**	0.007 0.085
Prof	0.432 1.793**	−0.541 −5.18****	dropped	−2.536 −2.328**	dropped	−5.511 −1.83*	dropped
Inv	−15.98 −3.33****	dropped	dropped	30.56 3.609****	dropped	dropped	dropped
Loss	2.59 3.62****	dropped	−0.242 −0.526	−1.996 −2.557**	0.380 2.125**	4.498 −1.93**	0.475 2.268***
Debt	−2.08 −2.90***	dropped	−0.134 −0.608	0.449 1.805**	dropped	0.18 0.808	−0.243 −2.16**
NEnt	−0.0056 −2.56**	dropped	−0.0005 −0.596	dropped	dropped	0.00023 0.264	dropped

Continued from p. 61

	Model for trade with non-CIS countries					Model for total foreign trade	
	1993	1994	1995	1996	1997	1996	1997
Sh4	dropped	dropped	0.064 0.361	−1.11 −3.09****	dropped	−1.075 −1.33	dropped
ShIn	no data	no data	5.36 2.252**	dropped	dropped	9.628 1.83*	dropped
R^2	0.927	0.911	0.9236	0.906	0.829	0.907	0.854
R_a^2	0.853	0.861	0.838	0.812	0.73	0.801	0.757
F	12.60***	18.37***	10.63***	9.61***	8.36***	8.53***	8.79***

Notes.

Upper figure in a cell refers to the value of a regression coefficient,

lower figure refers to the value of *t*-statistic.

Y — Y-intercept

* — significant at the 90 per cent level;

** — significant at the 95 per cent level;

*** — significant at the 99 per cent level;

**** — significant at the 99.5 per cent level.

For the *F*-ratio, only 95 per cent and 99 per cent confidence levels are considered.

Table A4. Stepwise backward-selection linear regressions, Variant 2.

	Model for trade with non-CIS countries					Model for total foreign trade	
	1993	1994	1995	1996	1997	1996	1997
Y	126.42 2.604**	37.72 4.251****	19.94 1.074	−31.48 −1.135	−22.90 −0.483	−32.7 −1.235	−39.06 −0.522
ΔImp	0.0435 4.448****	0.033 3.093****	0.0042 0.936	−0.0088 −0.478	0.011 0.689	−0.011 −0.820	0.0091 0.366
ΔOut	0.113 1.924**	0.011 0.175	−0.0017 −0.021	−0.056 −0.981	−0.0455 −0.977	−0.069 −1.249	−0.0531 −1.121
RExp	−0.027 −1.412*	0.033 1.987**	−0.0047 −0.218	−0.0159 −0.852	−0.011 −0.652	−0.0044 −0.209	0.0085 0.371
ShImpI	1.478 1.058	3.92 2.635***	1.364 0.520	0.398 0.211	1.036 0.610	1.747 0.883	2.10 1.053
Pri	no data	no data	−0.0446 −0.853	0.158 1.140	0.503 1.087	0.192 1.409*	0.883 0.860
Emp	0.0175 2.193**	0.00095 2.163**	0.0013 2.137**	−0.00021 −0.187	−0.00041 −0.448	−0.00033 −0.286	0.0017 1.061
Wage	0.159 2.276**	−0.153 −4.29****	−0.018 −0.42	0.0068 0.113	−0.129 −3.12****	−0.016 −0.258	0.0092 0.059
Prof	0.205 0.619	−0.390 −2.644***	dropped	0.738 1.048	dropped	0.755 1.115	−1.35 −0.740
Inv	−16.13 −3.08****	dropped	dropped	dropped	dropped	dropped	−6.91 −0.801
Loss	1.66 1.687**	dropped	0.446 2.115**	0.649 2.045**	dropped	0.653 2.168**	−0.0073 −0.011
Debt	−1.99 −2.46***	dropped	dropped	dropped	dropped	dropped	−0.581 −1.788**
NEnt	−0.0053 −2.211**	dropped	dropped	dropped	dropped	dropped	dropped

Continued from p. 63

	Model for trade with non-CIS countries					Model for total foreign trade	
	1993	1994	1995	1996	1997	1996	1997
Mon	dropped	dropped	dropped	dropped	dropped	dropped	dropped
Sh4	dropped	dropped	dropped	dropped	dropped	dropped	dropped
Stat	dropped	dropped	dropped	dropped	dropped	dropped	dropped
ShIn	no data	no data	dropped	dropped	dropped	dropped	dropped
R^2	0.552	0.485	0.365	0.414	0.381	0.426	0.446
R_a^2	0.440	0.410	0.257	0.301	0.293	0.316	0.310
F	4.93***	6.46***	3.38***	3.68***	4.31***	3.87***	3.29***

Notes.

Upper figure in a cell refers to the value of a regression coefficient,

lower figure refers to the value of *t*-statistic.

Y — Y-intercept

* — significant at the 90 per cent level;

** — significant at the 95 per cent level;

*** — significant at the 99 per cent level;

**** — significant at the 99.5 per cent level.

For the *F*-ratio, only 95 per cent and 99 per cent confidence levels are considered.

B. Results of Testing Regression Models for Individual Hypotheses

Table B1. Model for foreign trade with non-CIS countries, 1993.

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Y-intercept	−7.33 −0.888	−36.8 −3.85****	−1.01 −0.292	4.45 2.04**	2.23 0.39	−19.3 −2.52***	4.69 1.73**	7.64 5.49****
ΔImp	−0.015 −0.831 N	0.0008 0.056 Y	−0.02 −1.18 N	0.022 0.09 Y	0.038 3.45**** Y	0.044 4.37**** Y	0.038 3.406**** Y	0.039 3.32**** Y
ΔOut	0.051 0.566 N	0.174 2.356** N			0.041 0.615 N	0.068 1.14 N		
ShImp	0.14 1.481* Y	0.19 2.65*** Y		0.17 1.04 N				
ΔShImp	−0.18 −1.348 N	−0.23 −2.31** N		−0.17 −0.54 Y				
ShExp			−0.0056 −0.063 Y	−0.06 −0.42 Y				
RExp			0.017 0.863 N	0.024 0.85 N			0.029 1.69* N	0.005 0.34 N
ShImpl			3.77 2.15*** A	4.13 1.9** N			2.18 1.39* A	1.48 0.9 N
Emp		0.001 3.3**** Y				0.00044 1.39* Y		

Continued from p. 65

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Loss		1.65 4.93**** Y				1.32 4.08**** Y		
Debt		0.29 3.87**** Y				0.23 2.89**** Y		
NEnt	0.00053 3.835**** N		0.00047 2.99**** Y		0.00024 2.116** N		0.00028 2.717**** Y	
Sh4	0.19 1.645* Y		0.512 0.64 N		−0.022 −0.23 N		−0.06 −0.51 Y	
R^2	0.485	0.71	0.533	0.24	0.262	0.43	0.303	0.19
R_a^2	0.344	0.61	0.406	0.04	0.204	0.37	0.23	0.14
F	3.45**	7.32***	4.19***	1.19	4.52***	7.49***	4.35***	4.02**

Notes.

Upper figure in a cell refers to the value of a regression coefficient,

lower figure refers to the value of *t*-statistic.

* — significant at the 90 per cent level;

** — significant at the 95 per cent level;

*** — significant at the 99 per cent level;

**** — significant at the 99.5 per cent level.

For the *F*-ratio, only 95 per cent and 99 per cent confidence levels are considered.

Y — the direction of impact of a variable corresponds to the expected one;

N — the direction of impact of a variable does not correspond to the expected one;

A — predicted sign is ambiguous.

Abbreviations:

PGH— pressure group hypothesis;

SISH — stagnant industry support hypothesis;

LH — liberalization hypothesis;

FRH — foreign repercussions hypothesis.

Table B2. Model for foreign trade with non-CIS countries, 1994.

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Y-intercept	−0.447 −0.058	−6.47 −0.53	9.72 3.60****	11.59 4.29****	12.39 2.22**	3.26 0.39	11.77 4.64****	12.23 8.11****
ΔImp	−0.0047 −0.275 N	−0.003 −0.158 N	−0.0033 −0.24 N	−0.018 −0.62 N	0.026 2.37** Y	0.029 2.58*** Y	0.024 2.39** Y	0.028 2.19** Y
ΔOut	0.104 1.257 N	0.116 1.24 N			0.014 0.219 N	0.014 0.21 N		
ShImp	0.0068 0.077 Y	0.064 0.699 Y		−0.23 −1.1 Y				
ΔShImp	0.0027 0.22 Y	−0.039 −0.3 N		0.43 1.6* N				
ShExp			−0.135 −1.938** Y	0.12 0.68 N				
RExp			0.031 2.05** N	−0.058 −1.61* Y			0.03 1.9*** N	−0.017 −1.08 Y
ShImpI			5.17 3.82**** A	4.04 2.68*** N			3.81 2.61*** A	2.56 1.44* N
Emp		0.0025 5.51**** Y				0.0012 3.35**** Y		
Loss		1.08 2.54*** Y				1.19 3.35**** Y		

Continued from p. 67

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Debt		−0.06 −0.64 N				−0.032 −0.36 N		
NEnt	0.00067 5.23**** N		0.00063 6.668**** Y		0.0003 3.29**** N		0.00038 3.95**** Y	
Sh4	−0.16 −1.52* N		−0.28 −2.738*** Y		−0.3 −2.81**** N		−0.355 −3.252**** Y	
R^2	0.746	0.732	0.84	0.034	0.396	0.4	0.47	0.174
R_a^2	0.677	0.65	0.796	0.15	0.348	0.34	0.42	0.126
F	10.79***	8.18***	19.21***	1.84	8.36***	6.68***	9.02***	3.65**

Notes.

Upper figure in a cell refers to the value of a regression coefficient,

lower figure refers to the value of *t*-statistic.

* — significant at the 90 per cent level;

** — significant at the 95 per cent level;

*** — significant at the 99 per cent level;

**** — significant at the 99.5 per cent level.

For the *F*-ratio, only 95 per cent and 99 per cent confidence levels are considered.

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A — predicted sign is ambiguous.

Abbreviations:

PGH— pressure group hypothesis;

SISH — stagnant industry support hypothesis;

LH — liberalization hypothesis;

FRH — foreign repercussions hypothesis.

Table B3. Model for foreign trade with non-CIS countries, 1995.

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Y-intercept	−6.92 −0.525	−6.14 −0.57	12.45 3.98****	11.98 2.61	11.88 0.725	14.52 1.51*	13.57 4.706****	112.56 5.66****
ΔImp	0.0009 0.288 Y	−5.2 E−05 −0.016 N	−0.0002 −0.057 N	0.007 1.015 Y	0.0033 0.903 Y	0.003 0.84 Y	0.003 0.804 Y	0.005 1.25 Y
ΔOut	0.251 3.54**** N	0.22 3.056**** N			0.032 0.473 N	−0.014 −0.2 Y		
ShImp	0.103 1.851** Y	0.129 2.28*** Y		0.085 0.68 N				
ΔShImp	−0.032 −0.53 N	−0.039 −0.63 N		−0.1 −0.81 Y				
ShExp			−0.117 −1.64** Y	−0.0064 −0.04 Y				
RExp			0.047 2.17** N	−0.04 −1.05 Y			0.018 0.937 N	−0.04 −2.36** Y
ShImpl			5.05 2.03** A	0.54 0.11 N			2.64 1.10 A	−1.36 −0.52 Y
Pri	−0.015 −0.4 N							
Emp		0.003 6.6**** Y				0.001 2.08** Y		

Continued from p. 69

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Loss		0.46 3.81**** Y				0.397 3.07**** Y		
Debt		−0.24 −1.84** N				−0.18 −1.26 N		
NEnt	0.00055 6.46**** N		0.00043 6.88**** Y		0.00025 2.375** N		0.0002 3.50**** Y	
Sh4	−0.15 −1.47* N		−0.314 −2.77*** Y		−0.24 −1.96** N		−0.314 −2.79**** Y	
ShIn	0.37 0.64 N			0.32 0.36 A	0.57 0.74 N			0.62 1.02 A
R^2	0.856	0.837	0.81	0.25	0.389	0.34	0.39	0.15
R_a^2	0.799	0.782	0.765	0.004	0.314	0.28	0.33	0.08
F	14.92***	15.38***	16.21***	1.02	5.21***	5.36***	6.43***	2.25

Notes.

Upper figure in a cell refers to the value of a regression coefficient, lower figure refers to the value of *t*-statistic.

* — significant at the 90 per cent level; ** — significant at the 95 per cent level; *** — significant at the 99 per cent level; **** — significant at the 99.5 per cent level.

For the *F*-ratio, only 95 per cent and 99 per cent confidence levels are considered.

Y — the direction of impact of a variable corresponds to the expected one;

N — the direction of impact of a variable does not correspond to the expected one;

A — predicted sign is ambiguous.

Abbreviations:

PGH— pressure group hypothesis;

SISH — stagnant industry support hypothesis;

LH — liberalization hypothesis;

FRH — foreign repercussions hypothesis.

Table B4. Model for total foreign trade, 1996.

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Y-intercept	20.98 1.91** 	−11.58 −0.98 	13.42 5.73**** 	8.74 1.77** 	32.87 3.489**** 	15.41 1.37* 	17.49 6.71**** 	12.49 3.96****
ΔImp	−0.03 −2.07** N	−0.033 −2.23*** N	−0.023 −1.607* N	−0.023 −0.898 N	−0.01 −0.88 N	−0.0097 −0.79 N	−0.012 −0.91 N	−0.011 −0.783 N
ΔOut	−0.036 −0.50 Y	−0.0044 −0.059 Y			−0.067 −1.30 Y	−0.0078 −1.48* Y		
ShImp	0.012 0.24 Y	0.037 0.76 Y		0.081 0.734 N				
ΔShImp	0.029 0.21 Y	0.115 0.803 Y		−0.075 −0.321 Y				
ShExp			0.0019 0.74 N	0.0038 0.64 N				
RExp			0.009 0.58 N	−0.038 −1.25 Y			0.01 0.54 N	−0.045 −2.82**** Y
ShImpI			0.08 0.712 A	−2.05 −0.83 Y			1.09 0.584 A	−2.69 −1.42* Y
Pri	−0.091 −1.22 N				−0.04 −1.34* N			
Emp		0.0034 6.24**** Y				0.0013 2.4** Y		

Continued from p. 71

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Inv		5.39 2.2** N				0.013 0.0046 N		
Loss		0.42 5.07**** Y				0.33 3.35**** Y		
Debt		−0.109 −1.01 N				−0.227 −1.64* N		
NEnt	0.0003 6.702**** N		0.0003 5.95**** Y		0.00013 2.328** N		0.00015 2.96**** Y	
Sh4	−0.115 −1.21 N		−0.254 −2.95**** Y		−0.27 −2.6*** N		−0.366 −3.36**** Y	
ShIn	0.94 1.5* N			1.258 1.52* A	0.538 0.76 N			0.93 1.39* A
R^2	0.825	0.824	0.795	0.496	0.439	0.394	0.39	0.196
R_a^2	0.761	0.76	0.744	0.226	0.372	0.321	0.329	0.13
F	12.94***	12.9***	15.54***	2.25	6.53***	5.41***	6.45***	3.18**

Notes.
Upper figure in a cell refers to the value of a regression coefficient,
lower figure refers to the value of *t*-statistic.
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*** — significant at the 99 per cent level; **** — significant at the 99.5 per cent level.
For the *F*-ratio, only 95 per cent and 99 per cent confidence levels are considered.
Y — the direction of impact of a variable corresponds to the expected one;
N — the direction of impact of a variable does not correspond to the expected one;
A — predicted sign is ambiguous.
Abbreviations:
PGH— pressure group hypothesis;
SISH — stagnant industry support hypothesis;
LH — liberalization hypothesis;
FRH — foreign repercussions hypothesis.

Table B5. Model for trade with non-CIS countries, 1996.

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Y-intercept	17.25 1.57* 	−13.29 −1.17 	11.44 5.27****	9.67 2.12**	32.49 3.4****	15.33 1.36*	17.37 6.796****	12.02 3.86****
ΔImp	−0.031 −2.009** N	−0.025 −1.51* N	−0.036 −2.56** N	0.009 0.27 Y	−0.0099 −0.558 N	−0.0009 −0.05 N	−0.0098 −0.55 N	0.0039 0.2 Y
ΔOut	−0.0085 −0.151 Y	0.011 0.18 N			−0.067 −1.28 Y	−0.078 −1.48* Y		
ShImp	0.066 1.45* Y	0.09 1.96** Y		0.097 0.67 N				
ΔShImp	−0.071 −0.53 N	0.018 0.127 Y		−0.177 −0.52 Y				
ShEx			0.015 0.68 N	0.019 0.27 N				
RExp			0.0067 0.54 N	−0.038 −1.25 Y			−0.0024 −0.142 Y	−0.048 −3.5**** Y
ShImpI			2.55 1.69* A	0.32 0.1 N			−0.92 −0.051 A	−2.25 −1.18** Y
Pri	−0.091 −1.30 N				−0.104 −1.34* N			
Emp		0.0036 6.696**** Y				0.0014 2.67*** Y		

Continued from p. 73

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Inv		5.29 2.08** N				0.084 0.031 N		
Loss		0.38 4.75**** Y				0.337 3.39**** Y		
Debt		−0.09 −0.84 N				−0.24 −1.73** N		
NEnt	0.00033 7.104**** N		0.00033 7.12**** Y		0.00014 2.56*** N		0.00014 2.72*** Y	
Sh4	−0.12 −1.34* N		−0.244 −3.23**** Y		−0.28 −2.61*** N		−0.33 −3.10**** Y	
ShIn	0.87 1.52* N			0.75 0.873 A	0.558 0.785 N			0.87 1.31* A
R^2	0.850	0.825	0.828	0.37	0.435	0.386	0.379	0.21
R_a^2	0.795	0.76	0.785	0.18	0.367	0.313	0.318	0.15
F	15.56***	13.01***	19.25***	1.96	6.40***	5.25***	6.22***	3.47**

Notes.

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lower figure refers to the value of *t*-statistic.
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*** — significant at the 99 per cent level; **** — significant at the 99.5 per cent level.
For the *F*-ratio, only 95 per cent and 99 per cent confidence levels are considered.
Y — the direction of impact of a variable corresponds to the expected one;
N — the direction of impact of a variable does not correspond to the expected one;
A — predicted sign is ambiguous.
Abbreviations:
PGH— pressure group hypothesis;
SISH — stagnant industry support hypothesis;
LH — liberalization hypothesis;
FRH — foreign repercussions hypothesis.

Table B6. Model for total foreign trade, 1997.

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Y-intercept	15.86 0.475	13.77 1.166	14.07 4.87****	16.71 3.759****	33.85 0.85	27.86 2.425***	16.18 6.77****	14.78 5.03****
Δ*Imp*	0.014 0.604 Y	0.02 0.93 Y	0.009 0.38 Y	0.61 1.479* Y	0.021 0.911 Y	0.021 0.99 Y	0.009 0.39 Y	0.034 1.298* Y
Δ*Out*	−0.041 −0.54 Y	−0.087 −1.071 Y			−0.06 −1.303* Y	−0.06 −1.30* Y		
ShImp	0.004 0.16 Y	0.019 0.71 Y		−0.02 −0.68 Y				
Δ*ShImp*				−0.11 −0.93 Y				
ShExp			−0.083 −1.295 Y	−0.032 −1.06 Y				
RExp			0.03 1.62* N	−2.42 −0.935 Y			0.0097 0.52 N	−0.043 −2.8**** Y
ShImpI			1.5 0.981 A	−2.42 −0.935 A			1.034 0.58 A	−2.47 −1.34* Y
Pri	0.011 0.034 Y				−0.064 −0.174 N			
Emp		0.0034 5.12**** Y				0.0015 2.65*** Y		
Inv		−0.91 −0.21 N				−6.0 −1.88** Y		

Continued from p. 75

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Loss		0.312 3.12**** Y				1.315 3.0**** Y		
Debt		−0.23 −1.62* N				−0.39 −3.1**** N		
NEnt	0.0003 3.2**** N		0.0003 6.39**** Y		0.0001 1.429* N		0.00016 3.2**** Y	
Sh4	−0.197 −1.135 N		−0.26 −3.1**** Y		−0.366 −2.6**** N		−0.33 −3.1**** Y	
ShIn	−0.17 −0.216			0.27 0.405 A	−0.49 −0.73 N			0.17 0.37 A
R^2	0.76	0.754	0.786	0.29	0.405	0.412	0.379	0.169
R_a^2	0.69	0.679	0.733	0.108	0.33	0.34	0.318	0.105
F	10.47***	10.08***	14.73***	1.61	5.67***	5.84***	6.24***	2.65**

Notes.

Upper figure in a cell refers to the value of a regression coefficient,
lower figure refers to the value of *t*-statistic.

* — significant at the 90 per cent level; ** — significant at the 95 per cent level; *** — significant at the 99 per cent level; **** — significant at the 99.5 per cent level.

For the *F*-ratio, only 95 per cent and 99 per cent confidence levels are considered.

Y — the direction of impact of a variable corresponds to the expected one;

N — the direction of impact of a variable does not correspond to the expected one;

A — predicted sign is ambiguous.

Abbreviations:

PGH— pressure group hypothesis;

SISH — stagnant industry support hypothesis;

LH — liberalization hypothesis;

FRH — foreign repercussions hypothesis.

Table B7. Model for trade with non-CIS countries, 1997.

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Y-intercept	24.11 0.72	−9.73 −0.67	11.13 4.92****	10.34 2.48**	37.25 0.96	26.42 2.288**	16.40 6.647****	14.00 4.89****
Δ*Imp*	0.01 0.41 Y	0.019 0.904 Y	−0.019 −1.19 N	0.025 0.69 Y	0.005 0.29 Y	0.008 0.509 Y	0.00025 0.015 Y	0.0047 0.258 Y
Δ*Out*	0.0073 0.129 N	0.014 0.258 N			−0.053 −1.16 Y	−0.052 −1.15 Y		
ShImp	0.064 1.54* Y	0.102 2.302** Y		0.015 1.177 N				
Δ*ShImp*	−0.198 −1.08 N	−0.22 −1.48* N		−0.27 −1.19 Y				
ShExp			0.00002 0.79 N	0.000067 1.43* N				
RExp			0.01 0.77 N	−0.039 −1.62* Y			−0.006 −0.365 Y	−0.048 −3.58**** Y
ShImpl			2.72 1.966** A	1.685 0.67 N			−0.09 −0.056 A	−1.60 −0.92 Y
Pri	−0.24 −0.68 N				−0.104 −0.28 N			
Emp		0.0037 6.158**** Y				0.0015 2.776**** Y		
Inv		4.28 1.01 N				−6.16 −1.93** Y		

Continued from p. 77

	Variant 1				Variant 2			
	PGH	SISH	LH	FRH	PGH	SISH	LH	FRH
Loss		0.36 3.929**** Y				0.33 3.16**** Y		
Debt		−0.15 −1.14 N				−0.38 −3.03**** N		
NEnt	0.00036 3.99**** N		0.0003 6.167**** Y		0.00013 1.596* N		0.00014 2.699**** Y	
Sh4	0.048 0.228 Y		−0.207 −2.64*** Y		−0.37 −2.66*** N		−0.28 −2.80**** Y	
ShIn	1.0 0.99 N			0.49 0.74 A	−0.48 −0.69 Y			0.22 0.45 A
R^2	0.789	0.803	0.798	0.42	0.396	0.404	0.371	0.21
R_a^2	0.712	0.732	0.747	0.24	0.325	0.332	0.31	0.15
F	10.30***	11.22***	15.77***	2.36	5.45***	5.64***	6.02***	3.37**

Notes.
Upper figure in a cell refers to the value of a regression coefficient,
lower figure refers to the value of *t*-statistic.
* — significant at the 90 per cent level; ** — significant at the 95 per cent level;
*** — significant at the 99 per cent level; **** — significant at the 99.5 per cent level.
For the *F*-ratio, only 95 per cent and 99 per cent confidence levels are considered.
Y — the direction of impact of a variable corresponds to the expected one;
N — the direction of impact of a variable does not correspond to the expected one;
A — predicted sign is ambiguous.
Abbreviations:
PGH— pressure group hypothesis;
SISH — stagnant industry support hypothesis;
LH — liberalization hypothesis;
FRH — foreign repercussions hypothesis.

C. Results of Testing "Ideal" Regression Models

Table C1. Ideal Regression Models, Variant 1.

	Model for trade with non-CIS countries					Model for total foreign trade	
	1993	1994	1995	1996	1997	1996	1997
Y-intercept	−27.16 −3.227****	−11.37 −1.93**	−20.89 −3.45****	−6.07 −2.01**	−3.71 −0.68	−5.97 −1.68*	3.54 0.51
ΔImp				−0.027 −1.87**		−0.027 −1.82**	
ΔOut	0.104 1.65*	0.114 1.79**	0.22 3.37****				−0.048 −1.051
ShImp			0.083 1.65*	0.045 1.49*	0.65 2.15**	0.04 1.51*	
ShImpl	3.24 2.67***	4.11 3.28****	3.34 1.91**	3.69 2.33**	2.60 1.95**	2.31 1.49*	2.681 1.91**
Emp	0.0011 3.48****	0.0023 7.2****	0.0003 7.26****	0.003 7.06****	0.0034 7.47****	0.0027 5.69****	0.0037 7.765****
Loss	1.48 4.65****	1.23 4.46****	0.518 4.94****	0.3 4.55****	0.356 4.74****	0.33 4.38****	0.40 4.59****
Debt	0.24 3.38****				−0.14 −1.57*		−0.226 −2.54***
R^2	0.694	0.803	0.834	0.803	0.808	0.774	0.768
R_a^2	0.628	0.771	0.798	0.764	0.769	0.728	0.722
F	10.44	24.53	23.19	20.39	21.03	17.08	16.60

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lower figure refers to the value of *t*-statistic.

* — significant at the 90 per cent level;

** — significant at the 95 per cent level;

*** — significant at the 99 per cent level;

**** — significant at the 99.5 per cent level.

The *F*-ratio is always significant at the 99 per cent confidence level.

Table C2. Ideal Regression Models, Variant 2.

	Model for trade with non-CIS countries					Model for total foreign trade	
	1993	1994	1995	1996	1997	1996	1997
Y-intercept	−10.98 −1.69**	1.48 0.65	2.12 0.74	−2.74 −0.69	21.27 2.06**	−5.02 −1.14	24.43 2.14**
ΔOut		0.028 2.696***					−0.056 −1.28
ShImpI	1.37 0.92	2.73 2.06**	2.3 1.22	1.73 1.06		2.72 1.55*	2.38 1.55*
Emp	0.0005 1.48*	0.0012 3.57****	0.001 2.84****	0.0015 3.384****	0.0017 3.16****	0.0016 3.58****	0.0016 3.0****
Inv					−6.19 −1.95**		−6.54 −2.08**
Loss	1.14 3.08****	1.17 3.99****	0.44 3.53****	0.328 4.02****	0.34 3.32****	0.36 4.26****	0.36 3.48****
Debt	0.19 2.055**				−0.39 −3.167****		−0.38 −3.13****
R^2	0.21	0.444	0.33	0.331	0.386	0.347	0.428
R_a^2	0.15	0.401	0.29	0.293	0.338	0.309	0.36
F	3.50	10.20	8.55	8.74	8.16	9.37	6.23

Upper figure in a cell refers to the value of a regression coefficient,
lower figure refers to the value of *t*-statistic.

* — significant at the 90 per cent level;

** — significant at the 95 per cent level;

*** — significant at the 99 per cent level;

**** — significant at the 99.5 per cent level.

The *F*-ratio is always significant at the 99 per cent confidence level.

Table C3. Ideal Regression Models, Variant 3.

	Model for trade with non-CIS countries					Model for total foreign trade	
	1993	1994	1995	1996a	1997a	1996	1997
Y-intercept	−12.31 −2.44***	1.26 0.55	1.31 0.498	−1.69 −0.43	21.58 2.03**	−2.08 −0.49	21.47 2.39**
ΔImp							0.026 1.77**
ShImpI	1.17 1.22	2.86 2.35**	0.96 0.8	1.25 0.98	1.504 1.34*	1.75 1.31*	1.97 1.59*
Emp	0.0003 1.32*	0.0009 2.96****	0.0015 1.77**	0.0011 2.88****	0.0012 2.81****	0.0012 3.21****	0.0012 2.62***
Inv					−7.5 −2.81****		−7.71 −2.96****
Loss	1.34 4.84****	1.034 3.55****	0.5 4.28****	0.289 3.69****	0.31 3.28****	0.28 3.48****	0.32 3.33****
Debt	0.19 2.68****				−0.38 −2.93****		−0.39 −3.1****
R^2	0.238	0.23	0.2	0.18	0.236	0.16	0.28
R_a^2	0.206	0.209	0.178	0.145	0.195	0.134	0.237
F	7.36	9.62	8.11	5.20	5.81	6.11	6.13

Upper figure in a cell refers to the value of a regression coefficient,
lower figure refers to the value of *t*-statistic.

* — significant at the 90 per cent level;

** — significant at the 95 per cent level;

*** — significant at the 99 per cent level;

**** — significant at the 99.5 per cent level.

The *F*-ratio is always significant at the 99 per cent confidence level.

D. Results of Testing Panel Data Models

Table D1. Regressions with Pooled Data and Year Dummies for Ideal Models.

	Model for trade with non-CIS countries, 1993–1997			Model for total foreign trade, 1996–1997		
	Variant 1	Variant 2	Variant 3	Variant 1	Variant 2	Variant 3
Y-intercept	−9.46 −1.869**	15.09 2.666****	13.61 2.898****	0.13 0.032	10.80 1.501*	20.25 3.034****
ΔImp	−0.001 −0.324			−0.018 −1.625*		0.0026 0.329
ΔOut	0.0346 1.084	−0.029 −1.168				
ShImp	0.046 1.944**			0.0065 0.501		
ShImpI	3.19 4.226****	1.49 2.132**	1.576 3.028****	2.775 2.691***	2.325 2.032**	2.236 2.543***
Emp	0.0022 11.548****	0.00081 4.068****	0.00053 3.376****	0.0035 11.115****	0.0018 5.099****	0.0013 4.335****
Inv		−2.128 −3.802****	−2.162 −4.143****		−3.211 −1.609*	−6.076 −3.513****
Loss	0.398 7.092****	0.314 5.413****	0.2728 5.288****	0.3866 6.770****	0.3713 5.246****	0.287 4.582****
Debt	−0.0746 −1.861**	−0.236 −4.047****	−0.242 −4.523****	−0.228 −3.430****	−0.296 −3.340****	−0.367 −3.916****
D_1993	7.803 2.868****	8.221 3.000****	7.767 3.310****			
D_1994	13.53 4.972****	13.578 4.954****	11.83 5.041****			
D_1995	10.74 4.505****	8.552 3.806****	7.85 4.388****			
D_1996	2.018 1.317*	0.2882 0.192	0.322 0.263	0.97 0.765	0.7224 0.547	0.336 0.286
R^2	0.706	0.361	0.235	0.763	0.383	0.231
R_a^2	0.682	0.337	0.220	0.732	0.348	0.203
F	29.05	15.20	16.51	24.84	11.07	8.23

Upper figure in a cell refers to the value of a regression coefficient, lower figure refers to the value of *t*-statistic.

* — significant at the 90 per cent level; ** — significant at the 95 per cent level; *** — significant at the 99 per cent level; **** — significant at the 99.5 per cent level.

The *F*-ratio is always significant at the 99 per cent confidence level.

Table D2. GLS Random-Effects Regressions with Pooled Data for Ideal Models.

	Model for trade with non-CIS countries, 1993–1997			Model for total foreign trade, 1996–1997		
	Variant 1	Variant 2	Variant 3	Variant 1	Variant 2	Variant 3
Y-intercept	−0.443 −0.102	22.42 4.254****	20.42 4.673****	1.521 0.417	11.69 1.671*	20.74 3.220****
ΔImp	−0.00021 −0.067			−0.017 −1.522		0.0025 0.327
ΔOut	0.0233 0.734	−0.036 −1.484				
ShImp	0.043 1.805*			0.0073 0.570		
ShImpI	3.106 4.087****	1.521 2.166**	1.528 2.921***	2.63 2.604***	2.28 2.004**	2.221258 2.537**
Emp	0.0023 11.568****	0.00082 4.118****	0.00053 3.398****	0.0036 11.209****	0.0018 5.141****	0.0013 4.362****
Inv		2.008 −3.580****	−2.075 −3.967****		−3.201 −1.609	−6.08 −3.525****
Loss	0.340 6.756****	0.249 4.773****	0.198 4.436****	0.376 6.815****	0.366 5.236****	0.285 4.589****
Debt	−0.073 −1.808*	−0.22 −3.798****	−0.234 −4.356****	−0.237 −3.634****	−0.302 −3.454****	−0.371 −4.033****
R^2:						
within	0.676	0.301	0.180	0.763	0.383	0.231
between	0.433	0.505	0.623	1.0†	1.0†	1.0†
overall	0.561	0.242	0.161	0.761	0.381	0.2304
chi^2	272.24	111.26	101.31	174.60	66.54	57.78
Hausman test:						
chi^2	5.48	6.58	8.37	0.56	0.27	0.08
$P > chi^2$	0.6015	0.3619	0.1368	0.9971	0.9981	1.00

Upper figure in a cell refers to the value of regression coefficient, lower figure refers to the value of *z*-statistic.

* — significant at the 90 per cent level; ** — significant at the 95 per cent level; *** — significant at the 99 per cent level; **** — significant at the 99.5 per cent level.

The chi^2 statistic in regression models is always significant at the 99.5 per cent confidence level.

† —No tariff changes in 1996–1997 for commodity types included in our database.

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